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⑤④ **TERMINAL OF RESERVING SYSTEM AND METHOD OF OPERATING TERMINAL COMPUTER THEREOF.**

⑤⑦ A terminal of a reservation system connected to a host computer for managing the reservation situation, the terminal used for requests of inquiring the reservation situation, acquiring a reservation, and preparing, inquiring and altering a reservation record, and the like to the host computer, and comprising a display (17), a pointing device, and a terminal computer. With the terminal, the operator can execute in parallel a plural of tasks, such as reserving processes (35,41,43,45,47) for the reservation acquiring job, reservation editing processes (51, 53, 55, 57) for preparing and altering the reservation record, and reservation inquiring processes (71, 73, 81, 83, 85) for inquiring the reservation record. The jobs are performed easily by operating parts with the pointing device which are displayed on reservation, reservation editing, and reservation record inquiring windows prepared by the processes and arbitrarily arranged on the screen. Data used in common is automatically transferred between the processes.

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BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to a reservation system for reserving various tickets of transport facilities, hotels, tours, etc. by means of a computer, and more specifically to a reservation system terminal connected to a host computer for integrately controlling reservation business, in order to transmit operator's instructions to the host computer and to display response data returned from the host computer for the operator.

Description of the Prior Art

Conventionally, the procedure required to acquire a reservation at a reservation system terminal is roughly as follows: (1) the current reservation status is inquired to the host computer to check the presence or absence of vacancy (e.g. unoccupied seats); (2) if unoccupied, a reservation acquisition instruction is transmitted to the host computer; (3) further, some information such as a name, a place where to make contact, etc. are inputted according to the necessity; and finally (4) a reservation record is prepared to complete the reservation procedure. Further, in some simple reservation systems, the reservation procedure can be completed by only the above steps (1) and (2).

In the prior-art reservation system, however, a series of the above-mentioned reservation procedure can be achieved when the operator inputs coded messages in accordance with predetermined formats through a terminal keyboard.

A prior-art flight reservation system now adopted in Japan Air Line Corporation will be explained in further detail by way of example. When the reservation status is inquired, (1) the operator first inputs an instruction code indicative of reservation status reference through a terminal keyboard; (2) a flight section code is inputted; (3) a date code is entered; and (4) a transmit key is depressed, finally.

For instance, when the reservation status is referred to about the section between Haneda and Osaka on January 1, a message as

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is inputted through the keyboard. This message is received by the host computer; the host computer informs the terminal of the current unoccupied status of flight numbers between Haneda and Osaka at that day; and the unoccupied flight number list is displayed on a terminal CRT image.

With reference to the displayed image, a reservation acquisition procedure is effected to flight numbers displayed in the list. In this case, similarly all the instructions and information data required for

flight reservation such as flight number, class, the number of seats, etc. are inputted as codes in accordance with predetermined formats through the keyboard.

The prior-art reservation system is called entry-oriented system, because all the instructions to the host computer are dependent upon the operators' keyboard operation. In addition, since the messages inputted through the keyboard are coded in accordance with predetermined formats, the entry-oriented system mainly involves the following problems:

(1) The operability or manipulatability is poor. In more detail, the operator must remember all the instruction codes to the host computer, the input format, and necessary information codes, etc. In addition, complicated instruction codes and input formats are increased more and more with diversification of the current reservation business. Further, since the prior-art system was originally developed in U.S.A. and therefore the instructions are coded on the basis of English language, the system is hard to deal with for foreigners. As a result, it is practically impossible for unskilled operators to operate the system, and therefore many hours and higher cost are required to educate and train the operators.

(2) Since all the operational procedure is dependent upon the operator's keyboard operation, at least several tens key strokes are required for a single reservation processing and therefore the business efficiency is inevitably low. In addition, there exist other problems in that the operator tends to become fatigued, in particular in eyes, fingers, arms, shoulders, etc.

(3) The intelligence capability of the terminal is not sufficiently put to practical use. A device provided with a high intelligence capability such as a personal computer is usually used as the terminal. However, the prior-art terminal is only used as a man-machine interface function between the operator and the host computer, so that it is impossible to store even the response data transmitted from the host computer or the information inputted by the operator. Therefore, since the response data and the input information obtained at the preceding procedure cannot be used again at the succeeding procedure, the operator must repeat the same operation as at the preceding procedure, thus resulting in a lower business efficiency.

To overcome these problems, conventionally some improvements have been made mainly in the terminal operability and practical use of intelligence capability as follows:

(1) Input guide formats necessary for reservation procedure are provided within the terminal. The operator calls these guides in sequence accord-

ing to the necessity to input necessary information through the keyboard in accordance with the called guide.

(2) A required number of keys at which various information codes are stored are provided for the terminal.

(3) Some input format examples used often are stored in specific keys, and other formats for only items of different contents are modified before inputted to the terminal.

(4) A display image is divided into a plurality of areas, and some information required for the succeeding procedure is kept in some areas.

In the above-mentioned improvement, however, since the improvements have been made in relation to the entry-oriented systems in which all the procedure is dependent upon the keyboard operation, the intelligence capability of the terminal is not sufficiently put into practical use, without basically solving the above-mentioned problems involved in the prior-art reservation system terminal.

SUMMARY OF THE INVENTION

With these problems in mind, therefore, it is the primary object of the present invention to provide a novel object-oriented reservation system by which procedure required to be executed can be simply selected and additionally necessary information can be simply inputted, when the operator has a direct access to or operates a display image by use of a pointing device, in order to markedly reduce the work load to the operator, thus basically solving the afore-mentioned problems involved in the prior-art entry-oriented reservation system.

The other object of the present invention is to provide a reservation system terminal provided with higher intelligence capability such as multi task function for simultaneously processing a series of reservation procedure, automatic information transfer function for automatically transferring necessary information between tasks, multiwindow function for controlling a plurality of images under overlapping conditions, etc., thus making efficient use of the intelligence capability of the terminal.

To achieve the above-mentioned object, the first aspect of the present invention provides a reservation system terminal associated with a host computer for processing reservation status, which comprises:

(A) reserving means for forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to said host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to said

host computer, respectively;

(B) displaying means for receiving the reservation images formed by said reserving means, and forming and displaying a display image including the formed reservation image;

(C) pointing device means for operating the parts arranged in the image displayed by said displaying means;

(D) part operation detecting means for detecting the part operated by said pointing device means; and

(E) host-to-terminal communicating means for transmitting various messages to said host computer and receiving response data from said host computer,

and wherein said reserving means selectively executes the following steps of, on the basis of part pointing operation effected on the reservation image and detected by said part operation detecting means:

(a) displaying the inputted reservation item contents on the reservation image;

(b) forming a reservation status inquiry message for inquiring a reservation status related to the inputted reservation item contents, transmitting the inquiry message to said host computer via said host-to-terminal communicating means, receiving selectable reservation object information transmitted by said host computer via said host-to-terminal communicating means as response data to the transmitted inquiry message, and displaying the selectable reservation object information list in the reservation image;

(c) displaying the selected reservation object in the reservation image; and

(d) forming a reservation request message for requesting a reservation acquisition related to the selected reservation objects, transmitting the formed reservation request message to said host computer via said host-to-terminal communicating means, receiving acquired reservation content information transmitted by said host computer via said host-to-terminal communicating device as response data to the reservation acquisition request, and displaying the acquired reservation contents in the reservation image.

To achieve the above-mentioned object, the present invention provides a method of operating a terminal computer incorporated in a reservation system terminal associated with a host computer for processing reservation status and provided with a display unit coupled to the terminal computer to display images and with a pointing device also coupled to the terminal computer to point visible parts on the displayed image, comprising the steps of:

(A) forming a reservation image including a plurality of parts for inputting contents related to

predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to the host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to the host computer, respectively;

(B) forming a display image including the formed reservation image, and transmitting the formed display image to the display unit for display;

(C) detecting a part operated by the pointing device on the displayed image;

(D) if a part pointing operation for inputting the contents of the reservation item is detected, displaying the inputted reservation item contents on the reservation image;

(E) if a part pointing operation for inquiring the reservation status is detected after the inputted reservation item contents have been displayed, forming a reservation status inquiry message for inquiring the reservation status related to the inputted reservation item contents;

(F) transmitting the formed reservation status inquiry message to the host computer;

(G) receiving reservation status information indicative of selectable reservation object transmitted from the host computer in response to the inquiry message;

(H) forming a list indicative of the selectable reservation object on the basis of the reservation status information, and displaying the formed list on the reservation image in relation to a part for selecting the reservation object;

(I) if a part pointing operation for selecting the reservation object is detected after the reservation object list has been displayed, displaying the reservation object selected by the part pointing operation on the reservation image;

(J) if a part pointing operation for requesting the reservation acquisition is detected after the selected reservation object has been displayed, forming a reservation request message for requesting a reservation acquisition related to the selected reservation object;

(K) transmitting the formed reservation request message to the host computer;

(L) receiving reservation acquisition information indicative of the contents of acquired reservation transmitted from the host computer in response to the reservation request message; and

(M) displaying the acquired reservation contents on the reservation image on the basis of the acquired reservation information.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram showing a hardware

configuration of an embodiment of the reservation system according to the present invention; Figs. 2A and B are functional block diagrams of the embodiment shown in Fig. 1;

Fig. 3 is an illustration showing a flight number reservation image;

Fig. 4 is an illustration showing a date designation image;

Fig. 5 is an illustration showing a domestic city designation image;

Fig. 6 is an illustration showing an international city designation image;

Fig. 7 is an illustration showing a reservation edit image;

Fig. 8 is an illustration showing a previous seat designation image;

Fig. 9 is an illustration showing a seat chart image;

Fig. 10 is an illustration showing a reservation record reference image;

Fig. 11 is an illustration showing a hotel reservation image;

Fig. 12 is an illustration showing a tour reservation image;

Fig. 13 is an illustration showing a motion picture display image;

Figs. 14A to E are illustrations showing menu images;

Fig. 15 is a flowchart for assistance in explaining the reservation edit process in the initial startup condition;

Fig. 16 is a flowchart for assistance in explaining the menu control process when "Display management" is clicked on the menu image;

Figs. 17A to C are flowcharts for assistance in explaining the flight number reservation process;

Fig. 18 is a flowchart for assistance in explaining the date designation process when a date designation image is opened on a flight number reservation image;

Figs. 19A and B are flowcharts for assistance in explaining the place name/area designation process when a domestic city designation image is opened on the flight number reservation image;

Figs. 20A and B are flowcharts for assistance in explaining the place name/area designation process when an international city designation image is opened on the flight number reservation image;

Figs. 21A to G are flowcharts for assistance in explaining the reservation edit process after the reservation has been completed;

Figs. 22A and B are flowcharts for assistance in explaining the previous seat designation process;

Figs. 23A and B are flowcharts for assistance in explaining the seat chart process;

Figs. 24A and B are flowcharts for assistance in

explaining the reservation record reference process when a flight number reservation record is referred to;

Figs. 25A to C are flowcharts for assistance in explaining the hotel reservation process;

Figs. 26A to C are flowcharts for assistance in explaining the tour reservation process;

Figs. 27A and B are flowcharts for assistance in explaining the place name/area designation process when the international city designation image is opened on a tour reservation image; and

Fig. 28 is a flowchart for assistance in explaining the motion picture display process.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 is a block diagram showing a hardware configuration of a preferred embodiment of the reservation terminal according to the present invention. A terminal (device) 1 is a personal computer in practice, which is composed of a CPU 3, a RAM 5, a ROM 7 for loading a system program, and I/O ports 9 for connecting various peripheral units such as a hard disc unit 11 for loading application programs, a floppy disk unit 13 for loading optional application programs, an AV (audio/visual) unit 15 (e.g. an optical disk deck or video deck), a CRT 17 for displaying images, a MODEM 21 for communicating with a host computer 19 via communication lines, a pointing device 30 such as an electronic pen 23, a mouse 25, etc., and a keyboard 29 for inputting various information not inputted through the pointing device.

Further, it is preferable that the operation system (OS) loaded in the terminal device 1 satisfies the following requirements:

- (1) Multiwindow and multitask processing are both enabled at real time.
- (2) Operability is excellent and the operating method is standardized.
- (3) Information signals can be inputted mainly through pointing devices.
- (4) Processing speed is high.
- (5) Many languages must be processed.
- (6) Data, software and hardware are compatible with those of many makers or manufacturers.
- (7) Software is high in development efficiency.

Operation systems such as UNIX, OS/2 and BTRON seem to satisfy the above requirements. However, BTRON (Business-The Realtime Operating System Nucleus) can be considered as being optimum because the above requirements (1), (2), (5) and (6) can be perfectly satisfied.

Figs. 2(A) and (B) are functional block diagrams showing an integrated reservation system terminal for reserving flight numbers, hotels and tours by way of example, which is configured as

shown in Fig. 1.

With reference to these diagrams, an operator can manipulate the terminal with pointing devices (PD) such as the electronic pen 25, the mouse 27, and the keyboard 29. The major operation can be executed by use of the PD 30; however, some operation such as proper noun (name, place where to make contact, etc.) information entry is executed through the keyboard 29, because these information is difficult to input through the PD 30. By use of the PD 30, the cursor position is movable on an image displayed on the CRT 17. A number of picture images can be displayed on the CRT 17, on each of which various parts (referred to as buttons, switch selectors, scroll selectors, etc.) and tag (or index) window images (representative of real window images) are arranged, as described later in further detail. Each function corresponding to each part is previously determined. When the operator moves the cursor to any given tag image or part by operating the pointing device 30 and further the PD 30 is clicked once in the case of parts and twice in the case of tag images, absolute coordinates of the current cursor position on the image are detected by a position detection block 31, and further the functions corresponding to each part or tag image on which the cursor is located are discriminated on the basis of the detected absolute coordinates by a function discrimination block 33. Here, the operation that the cursor is located on a tag image and then the PD 30 is clicked twice is referred to as "a tag image is double clicked or double tag image clicks" and the operation that the cursor is located on a part and then the PD 30 is clicked once is referred to as "a part is (once) clicked or single part click", hereinafter.

In response to the discriminated result of the function discrimination block 33, an image control block 119 controls the display on the CRT 17. In more detail, the image control block 119 is provided with multiwindow processing function such that the arrangement of various image windows are controlled on the basis of the above-mentioned discriminated result in order to multidisplay a plurality of images given through various processing as described later. In practice, since a plurality of window images are arranged in overlapping condition, although the outermost image arranged in front of the overlapped images (referred to as in-front image or displays) can be seen all over the image, only a part offset from the in-front image can be seen in the case of other inner images arranged in back (referred to as in-back images or displays). Therefore, the operator can operate or have an access to tag images and parts displayed in a complete image or in a visible partial portion of in-back images by use of the PD 30. Here, the tag

image has an index function in process. When double tag image clicks are discriminated, the image control block 119 arranges a process window corresponding to the discriminated tag image as an in-front image. (Further, if the corresponding process is not yet started, the process is simultaneously started.) When a visible part of the in-back image is clicked, the image control block 119 displays the clicked image as the in-front image.

An image display block 121 is of bit map graphic mechanism for multidisplaying a plurality of images on the CRT 17 in accordance with the window arrangement order determined by the image control block 119.

Within the AV device 15, there are arranged optical disks or video tapes for recording color movies (motion pictures) to introduce hotels or tours. As described later, when a tag image of the movie display process is double clicked, the image control block 119 activates the AV device 15 to playback the designated hotel or tour movie and further transmit information for controlling the movie display to the image display block 121, so that the playbacted movie can be displayed in the outermost window as an in-front image.

In the terminal device provided with multiwindow and multitask processing functions, a plurality of independent processes can be executed in parallel fashion. These processes are flight number reservation process, date designation process 37, place name/area designation process, reservation edition process, previous seat designation process, seat chart display process, reservation record reference process, hotel reservation process, motion picture display process, tour reservation process, etc. Each of these processes is provided with a function for forming each specific image. These images are multiwindow processed by the image control block 119 and then multidisplayed on the CRT 17.

The function is provided such that information inputted by the operator or from the host computer can be transmitted to other process, where necessary. This function is shown in Fig. 2(A) as an inter-process communication block 123, and can be realized by storing information required for plural processes in a memory area used in common for these processes. The inter-process communication block 123 is functioning at all times as the background operation of each process.

In addition to the above-mentioned processes, there are provided host-to-terminal communication process 125, menu control process 32, color arrangement control process 34, etc.

The host-to-terminal communication process 125 transmits messages in the various processes to the host computer 19 and returns the related response data from the host computer 19 to the

process. In other words, this process enables normal communications between the terminal 1 and the host computer 19. This host-to-terminal communication process 125 always exists as an independent process in the background of the various process, which is operated when the independent process transmits messages to the host computer 19.

The menu control process 32 is started when a menu button (not shown) provided for the PD 30 is depressed. This process 32 transmits a menu image as described later to the image control block 119 so that the image control block 119 displays the menu image as the in-front image. Since a number of function items are displayed on this menu image, any required functions can be selected by the clicking operation.

The color arrangement control process 34 is started when "color arrange" is clicked on the menu image, to control the image control block 119 so that the colors of the in-front image, background and parts can be changed. When the color arrangement is appropriately selected, it is possible to divert or relax the operator himself or herself.

The above-mentioned process will be described hereinbelow in detail, respectively with reference to Figs. 3 to 14.

The flight number reservation process is the one for performing the reservation procedure of flight numbers, and provided with various functions shown by a flight number reservation image display block 35, a reservation status inquiry message transmit/receive block 41, a reservation status display block 43, a reservation message transmit/receive block 45, and a reservation result display block 47.

The flight number reservation image display block 35 forms a flight number reservation image as shown in Fig. 3 and sends the image to the image control block 119. At the header position of this flight number reservation image, a pictogram 131 (referred to as "flight number reservation pictogram") is arranged. When the double clicks of this flight number reservation pictogram 131 is discriminated, the flight number reservation process 35 is suspended, and the flight number reservation image window is deleted by the image control block 119. The flight number reservation image includes three tag images of a domestic city designation tag image 133, an international city designation tag image 135 and a date designation tag image 137. In general, a tag image has an index function for representing a process, as already explained. When a pictogram within a tag image is double clicked (referred to as "a tag image is double clicked"), the process corresponding to the tag image is started and the corresponding image is displayed in front. Therefore, when the

date designation tag image 137 is double clicked, the date designation process 37 is started, so that a date designation image as shown in Fig. 4 is sent to the image control block 119 to display the date designation image in front. When the domestic city designation tag image 133 or the international city designation tag image 135 is double clicked, the place name/area designation process 39 is started and a domestic city designation image as shown in Fig. 5 or an international city designation image as shown in Fig. 6 is sent to the image control block 119 to display the domestic city designation image or the international city designation image in front.

In the date designation process 37, a date can be designated on the date designation image. In the place name/area designation process 39, a section between the departure and the arrival can be designated on the domestic or international city designation image. The date and section designated at these processes are automatically transmitted to the flight number image display block 35 via the inter-process communication block 123. On the flight number reservation image as shown in Fig. 3, there are arranged date boxes 139, 141 and 143 in which a date is displayed and section boxes 145 and 147 in which a flight section is displayed. Further, a box indicates generally a part in which an input date (letter or numeral) is displayed. In these date boxes 139, 141 and 143, the today's date is initially displayed in default of data. However, when a desired date is given via the inter-process communication block 123, the designated date is displayed in these boxes. Further, a designated flight section given via the inter-process communication block 123 is displayed in the departure and arrival boxes 145 and 147. Further, a succeeding day button 149 and a preceding day button 151 are additionally arranged. Here, the button generally indicates a part for requesting a predetermined operation at the process. When the succeeding day button 149 or the preceding day button 151 is clicked, a date displayed in the date boxes 139, 141 and 143 is changed to a succeeding or preceding day. Therefore, when a date close to today can be displayed by using the succeeding button 149 and the preceding button 151 without dependence upon the date designation image process 37. Further, a succeeding flight number button 153 is provided for the flight section. Therefore, when this button 153 is clicked, the two displays in the departure box 145 and the arrival box 147 are reversed, so that this operation is convenient when going and returning flight numbers are reserved in sequence.

After the date and section have been designated, when a transmit button 155 is clicked, the reservation status inquiry message transmit/receive block 41 forms a reservation status inquiry mes-

sage of the designated date and section and sends it to the host-to-terminal communication process 125. This host-to-terminal communication process 125 transmits this message to the host computer 19. In response to this reservation status inquiry message, the host computer 19 returns the reservation status data indicative of vacant seat flight numbers to the host-to-terminal communication process 125, and then to the reservation status inquiry message transmit/receive block 41. After having determined the received data to be correct data, the reservation status inquiry message transmit/receive block 41 gives the received data to a reservation status display block 43.

After having transformed the reservation status data into an understandable language (e.g. Japanese language), the reservation status display block 43 gives the transformed data language to a reservation image block 35. Thereupon, a list of vacant seat flight numbers is displayed in Japanese language in a reservation status scroll selector 171 in the flight number reservation image. The reservation status data sent from the host computer 19 at a time usually correspond to those written on a single page of the reservation status scroll selector 171. Therefore, there exists the case where it is impossible to transmit all the data indicative of all the vacant seat flight numbers at a time. In this case, a succeeding page button 159 in the flight number reservation image is clicked. Then, the remaining data transmit request is given to the host computer 19 in the same route as described above, so that reservation status data on the succeeding page can be transmitted from the host computer 19. In general, the scroll selector displays a list of letter data. This list can be scrolled by moving the PD 30 along bars displayed on the right side of the image. Further, when one data in the list is clicked, the clicked data can be inputted. Therefore, whenever the reservation status scroll selector 17 is scrolled, the list not seen on the succeeding page becomes visible. Further, when one of the vacant seat flight number on the list is clicked, the clicked flight number is designated as a reserved object.

In this connection, where a flight number required to be reserved is determined at the beginning, it is unnecessary to inquire the reservation status. In this case, if the flight number designation button 161 is clicked, since the flight number box 163 is displayed. When a flight number code is inputted through the keyboard 29, the flight number is displayed in the flight number box 63, so that the flight number designation can be completed.

In the flight number reservation image, there are arranged a class switch selector 153 for selecting a boarding class and a seat number switch selector 154 for selecting the number of seats. In

general, in the switch selector, a plurality of switches are arranged so as to correspond to a plurality of data to be selected. Therefore, a switch is clicked, a data corresponding to the clicked switch can be designated. "Y" is initially designated in the class switch selector 153 in default, and "1" is initially designated in the seat number switch selector 154 in default. However, when another switch is clicked, another class or another number of seats can be designated. After designated, the switch of the designated class or the number of seats is displayed in color different for other non-designated switches. Further, when "other" is designated in the class switch selector 153, a class input box 167 appears. Here, when any given class code is inputted through the keyboard 29, the inputted class code is displayed in the class input box 162, so that any given class can be designated.

Further, in the flight number reservation image, there are provided an ARNK button 165 and an OPEN button 167 for designating specific reservation modes. When the ARNK button 165 is clicked, ARNK reservation can be designated. When the OPEN button 167 is clicked, a company code input box 169 appears. In this case, when any given airline (i.e. aviation company) code is inputted through the keyboard 29, the inputted airline code is displayed in the company code input box 169, so that open reservation for the displayed airline can be designated.

As described above, after details of the date, section, class, the number of seats, etc. have been designated, when the transmit button 155 is clicked, a message panel (not shown) for confirming whether the flight number reservation is required or not on the flight number reservation image is displayed in front. Therefore, when the confirmation button in this panel is clicked, the reservation message transmit/receive block 45 forms a message for reserving the designated details and sends the formed message to the host-to-terminal communication process 125 to transmit the formed message to the host computer 19. When a data indicative of reservation acquisition is returned from the host computer 19, this data is sent to the reservation message transmit/receive block 45 via the host-to-terminal communication process 125. After checked that the received data is not an erroneous data, the reservation message transmit/receive block 45 transmits the data to the reservation result display block 47.

The reservation result display block 47 transmits the analyzed result of the received data, that is, the acquired reservation contents to a reservation edition image display block 51 via the inter-process communication block 123, and simultaneously displays a reservation acquisition and a

succeeding operation instruction in Japanese, for instance in the message box 172 on the flight number reservation image.

Further, an interrupt button 157 is provided on the flight number reservation image. When this interrupt button 157 is clicked, all the processing so far executed are all disregarded; all the data display is deleted on the image; and an interrupt message is transmitted to the host computer 19 via the host-to-terminal communication process 125. In response to the interrupt message, the host computer 19 deletes the reservation acquired by the processing already executed up to now.

The date designation process 37 will be described in detail hereinbelow. This process 37 forms the date designation image as shown in Fig. 4 and sends it to the image control block 119. The size of this date designation image window is determined a little smaller than that of the flight number reservation image shown in Fig. 3.

In the date designation image, there are provided a calendar switch selector 173 representative of the current month and a calendar switch selector 175 representative of the next month. When either one of the calendar switch selectors 173 and 175 is clicked, the date data corresponding to the clicked switch are sent to the flight number reservation image display block 35 via the inter-process communication block 123, and displayed in the date boxes on the flight number reservation image in the same way as described already.

In the date designation image, there are arranged a date designation pictogram 177 for deleting the date designation image (the date designation process 37 is interrupted), a flight number reservation tag image 179 for displaying the flight number reservation image in front, a domestic city designation tag image 181 for displaying the domestic city designation image in front, an international city designation tag image 183 for displaying the international city designation image in front, and an interrupt button 185 for interrupting all the above-mentioned designations.

The place name/area designation process 39 will be described hereinbelow in detail.

This process 39 forms the domestic city designation image as shown in Fig. 5 and the international city designation image as shown in Fig. 6, and sends these images to the image control block 19. The size of each of these domestic and international city designation images is also determined a little smaller than that of the flight number reservation image as shown in Fig. 3.

In the domestic city designation image as shown in Fig. 5, there are provided main airport buttons 187 to 207 arranged on a domestic map, an airport scroll selector 209 representative of all the domestic airport lists, a departure/arrival switch

selector 211 for selecting a departure airport or an arrival airport, and departure and arrival boxes 213 and 214 for displaying departure and arrival airport, respectively. After a departure or arrival airport has been selected by the switch selector 211, when any one of the main airport buttons 187 to 207 or any one of the airport names in the scroll selector 209 is clicked, the airport name is displayed in the departure box 213 or the arrival box 214. Simultaneously, the airport data are sent to the flight number reservation image display block 35 via the inter-process communication block 123 to display the airport data in the departure box 145 or the arrival box 147 in the flight number reservation image. Further, when a code display button 215 is clicked, an airport name displayed in each box is changed into a code display composed of three alphabetic letters.

Further, in the domestic city designation image, there are provided a domestic city designation pictogram 217 for deleting the domestic city designation image, a flight number reservation tag image 219 for displaying the flight number reservation image in front, an international city designation tag image 220 for displaying the international city designation image in front, a date designation tag image 221 for displaying the date designation image in front, and an interrupt button 223 for transmitting an interrupt message.

In the international city designation image as shown in Fig. 6, there are provided scroll selectors 223 to 229 for displaying the essential city/international airport lists classified according to areal groups in the world, a switch selector 231 for selecting one of departure and arrival, and boxes 233 and 235 for displaying a departure place name and an arrival place name, respectively. The scroll selectors 223 to 229 are used to designate flight sections in the reservation of international flight numbers or in the designation of cities for tour reservation. Further, when one of the scroll selectors 223 to 229 is scrolled, another area list including Hawaii, North America, South America, etc. (not shown) can be displayed. This area list is used to designate areas instead of cities when tours are reserved.

Additionally, in the international city designation image, there are provided an international city designation pictogram 237, a flight number reservation tag image 239, a domestic city designation tag image 241, a date designation tag image 243, an interrupt button 245 and a code display button 247. The detailed description of the functions of these parts is omitted herein, because of substantially the same as the similar parts provided in other images.

Further, as described later, the date designation image, the domestic city designation image and the international city designation image can be

used when hotels or tours are reserved or when the reservation record is required, in addition to the flight number reservation. In these cases, data representative of dates, sections, cities, etc. are given to a reservation record reference image display block 71, a hotel reservation image display block 87, a tour reservation image display block 103, etc. via the inter-process communication block 123 to display these data in predetermined boxes, respectively.

Reservation edition process will be described hereinbelow. In this process, information about passengers who acquired reservations such as names, places where to make contact, etc. are inputted to write out change, add, and delete these reservation records. This reservation edition process includes various functions represented by a reservation edition image display block 51, a reservation item input/output block 53, a reservation record preparation message transmit/receive block 55, and a reservation record display block 57. Further, at the initial conditions after the terminal has been started, only the reservation edition process is automatically started, and the other processes can be started when each tag image is clicked on the reservation edition image as explained below.

The reservation edition image display block 51 forms a reservation edition image as shown in Fig. 7 and sends it to the image control block 119. This reservation edition image includes a flight number reservation tag image 251, a hotel reservation tag image 253, a tour reservation tag image 255, a reservation reference tag image 257, a previous seat reservation tag image 259, and a movie tag image 261. When either one of these tag images is double clicked, the process corresponding to the double clicked tag image is started (at the initial condition when the terminal is activated), and the image corresponding to the process is displayed in front. Since this reservation edition image window is determined to be the largest size among other images, even if any other image is displayed in front, a part of the reservation edition image (at least the header position at which a reservation edition pictogram 249 is indicated) is always visible. Therefore, whenever clicked, it is possible to display the reservation edition image in front.

The reservation contents acquired at each reservation process are transmitted to the reservation edition image display block 51 via the inter-process communication block 123. These reservation contents are listed on and displayed by a reservation content scroll selector 295 in the reservation edition image.

In the reservation edition image, there are provided a scroll selector 271 as a part for inputting reservation items, a name input box 273, an age input box 275, a sex distinction switch selector 277,

an infant button 279, a contact place (where to make contact), ranking switch selector 281, two contact place input boxes 283 and 285, two contact place sort switch selectors 283 and 289, a passenger (or applicant) name input box 291, and a personal relationship switch selector 293. These parts are controlled by the reservation item input/output block 53 according to the operation of the keyboard 29 or the PD 30. In more detail, when the name input box 273 is clicked, this box is displayed by a thick black frame. Subsequently, if a passenger name is inputted through the keyboard 29, the name is displayed in the name input box 273. Thereafter, when age input box 275 is displayed by a thick black frame. Subsequently, if an age is inputted through the keyboard 29, the age is displayed in the age input box 275. When the sex distinction switch selector 277 and the infant button 279 are clicked, respectively, the sex distinction of the passenger and the infant passenger are designated. All the passenger information designated as described above are listed and displayed by the passenger scroll selector 271. Further, when one of the contact place boxes 283 and 285 is clicked, the clicked box is displayed by a thick black frame. Subsequently, if a telephone number is inputted through the keyboard 29, the input telephone number is displayed in the contact place input box displayed by a thick black frame. Since two place input boxes 283 and 285 are arranged, two contact places can be designated. When the contact place switch selectors 287 and 289 are clicked, two sorts of contact places can be designated. The contact place switch selector 281 is used to change the place where to make contact. When clicked, one of place boxes required to be changed is selected. After the passenger (or applicant) input box 291 has been clicked, if a passenger (or applicant) name is inputted through the keyboard 29, the name is displayed in the box 291. When the personal relationship select switch 293 is clicked, the personal relationship between the applicant and the passenger can be designated.

After all the reservation items have been designated as described above, when a transmit button 297 is clicked, a confirmation panel (not shown) is displayed in the reservation edition image in the same way as in the flight number reservation. When a confirmation button arranged therewithin is clicked, the reservation record preparation message transmit/receive block 55 prepares a reservation record with respect to the designated reservation items, and the message for modification or addition where necessary and sends the prepared record to the host computer 19 via the host-to-terminal communication process 125. When data

indicative of reservation record preparation completion is returned from the host computer 19, the data is inputted to the reservation record preparation message transmit/receive block 55 via the host-to-terminal communication process 125. The reservation record preparation message transmit/receive block 55 transmits the data (if not erroneous) to the reservation result display block 47. The reservation result display block 47 analyzes the input data, and displays a message indicative of the reservation record preparation on the reservation edition image. Thereafter, when a completion button 299 is further clicked, a completion message indicative of the reservation record preparation completion is sent to the host computer 19 via the same route as described above. Since data indicative of a reservation record number are returned from the host computer 19, this reservation record number is displayed in a reservation record number box 263 on the reservation edition image. Further, when a transmit button is not clicked but only a completion button 299 is clicked, the communications between the host computer 19 and the terminal are executed collectively. Further, when a previous seat designation process as described later is started, the above-mentioned reservation contents and reservation record number are transmitted from the reservation result display block 47 to a previous seat designation image display block 59 (described later) via the inter-process communication block 123.

In the reservation edition image, there are additionally provided a reservation edition pictogram 249 for deleting the reservation edition image, preparation date boxes 265 and 267 for displaying the reservation record preparation date, an available period box 269 for displaying the available period of the reserved record, an interrupt button 301 for transmitting an interrupt message, a confirmation button 302 for transmitting a reference message to confirm the reservation contents, etc.

Further, it is also possible to change, delete and add the reservation record by use of the reservation edition image, in addition to the reservation record preparation. In these cases, however, it is necessary to select a function item of change, delete, or add, respectively on the menu image.

The previous seat designation process will be described hereinbelow. In this process, a seat of the reserved flight number can be designated. The process includes the functions shown by a previous seat designation image display block 59, a designation item input/output block 61, and a seat status transmit/receive block 63.

The previous seat designation image display block 59 forms a previous seat designation image as shown in Fig. 8 and sends it to the image control block 119. This image includes a passenger scroll selector 311 and a reserved flight number

scroll selector 313. The passenger scroll selector 311 displays a list of the passenger names transmitted from the reservation edition process, and the reserved flight number scroll selector 313 displays a list of the reserved flight numbers transmitted from the same reservation edition process.

Prior to the seat designation, the seat designation status is first inquired. In this case generally, one passenger and one reserved flight number are selected by click operation from the passenger scroll selector 311 and the reserved flight number scroll selector 313, and then the seat chart button 307 is clicked. Therefore, since the seat chart display process is started and data indicative of the selected passenger and the reserved flight number are transmitted to the seat chart display process, the seat status transmit/receive block 63 prepares an inquiry message of the seat designation status about the selected and reserved flight number and sends it to the host computer 19 via the host-to-terminal communication process 125. When data indicative of the seat designation status are returned from the host computer 19, the data are transmitted to the seat status transmit/receive block 63 via the host-to-terminal communication process 125. The seat status transmit/receive block 63 transmits the received data (if not erroneous) to the previous seat designation image display block 59. The previous seat designation image display block 59 further transmits the received seat designation status data to the seat chart display process.

As described later, when the seat chart display process is started, a seat chart image as shown in Fig. 9 is displayed in front to allow the operator to designate a seat on this image. Data indicative of the designated seat are sent to the seat designation image display block 59 via the inter-process communication block 123. The seat designation image display block 59 displays the flight number whose seats are designated, the passenger names, and the designated seat numbers on the previous seat scroll selector 315.

In the seat designation image, there are additionally provided a seat designation pictogram 305 for deleting the seat designation image, and an interrupt button 309 for transmitting an interrupt message.

The seat chart display process will be described hereinbelow. This process is provided with functions shown by a seat chart image display block 65, a seat designation message transmit/receive block 67 and a seat designation result display block 69.

The seat chart image display block 65 forms a seat chart image as shown in Fig. 9 and sends it to the image control block 119. In this image, there are provided a passenger/designated seat scroll selector 319 for displaying a list of passengers and

the designated seats and a flight number box 325 for displaying the flight number. The above-mentioned selected passenger names and flight number transmitted from the previous seat designation process are displayed on the seat designation scroll selector 319 and the flight number box 325, respectively. Simultaneously, a seat chart 327 of the airplane model used for the reserved flight number is also displayed.

In the seat chart 327, seat buttons 329 indicative of seats, respectively are arranged. In these seat buttons, the occupied seats are displayed in color different from that of the unoccupied seat on the basis of the seat designation status data transmitted from the previous seat designation process. Further, various information useful or required for seat selection decision (e.g. smoking seats, non-smoking seats, doorway positions) is displayed in different colors and letters so as to be distinguishable.

To designate a seat, a seat button 329 required to designate within the seat chart 327 is clicked and then a transmit button 321 is clicked. Then, since a confirmation panel is displayed in front in the same way as in the flight number reservation, when the confirmation button is clicked, the seat designation message transmit/receive block 67 prepares a message indicative of the seat designation for the clicked seat button (329) number, and sends it to the host computer 19 via the host-to-terminal communication process 125. When data indicative of the seat designation completion are returned from the host computer 19, the data are transmitted to the seat designation message transmit/receive block 67 via the host-to-terminal communication process 125. The seat designation message transmit/receive block 67 gives the received data (if not erroneous) to the seat designation result display block 69. The seat designation result display block 69 analyzes the received data; displays the designated seat number in the passenger/designated seat scroll selector 319 on the seat chart image 327; changes the color of the designated seat button 329 in the seat chart 327; displays a message indicative of seat designation completion in Japanese; and transmits the received data to the previous seat designation image display block 59 via the inter-process communication block 123.

In the seat chart image, there are additionally provided a seat chart pictogram 317 for deleting this image and an interrupt button 323 for transmitting an interrupt message.

The reservation record reference process will be described hereinbelow. This process is the one for referring to the previously prepared reservation record, and provided with various functions shown by a reservation record reference image display

block 71, a reservation item input/output block 73, a reservation record list display block 81, a reservation reference message transmit/receive block 83, and a reservation record display block 85.

The reservation record reference image display block 71 forms a reservation record reference image as shown in Fig. 10 and sends it to the image control block 119. In this image, there are provided a reference method select switch 333, a reservation record number designation box 334, a name designation box 335, a flight number designation box 337 and two date designation boxes 339 and 341 as parts for designating the reservation record contents required for reference. These parts are controlled by the reservation item input/output block 73 according to the operation through the PD 30 and the keyboard 29. In more detail, when the reference method select switch 333 is clicked, the method is selected as to whether the reservation record is referred to on the basis of a reservation record number or another item. When a reservation record number is selected, the reservation record designation box 334 is displayed by a thick frame. Subsequently, when a reservation record number is inputted through the keyboard 29, the input number is displayed in the reservation record designation box 334. Further, when a date, a flight number or a name is selected and further when a name designation box 335 or a flight number designation box 337 is clicked, the clicked box is displayed by a thick frame. Subsequently, when a passenger name or a flight number is inputted through the keyboard 29, the inputted item is displayed in the corresponding box shown by a thick frame. In the case of the date designation boxes 339 and 341, when the date designation tag image 351 is double clicked, the date designation image as shown in Fig. 4 is displayed in front. Therefore, if the date is designated on this image, the designated date data are transmitted via the inter-process communication block 123 and then displayed in the date designation boxes 39 and 41.

Further, it is unnecessary to designate all the three items of passenger name, flight number and date, because the reserved record can be referred to by only a passenger name or both a passenger name and a date.

After the reservation items have been designated as described above, when the transmit button 43 is clicked, the reservation record reference message transmit/receive block 83 forms a message indicative of a reservation record reference as to the designated reservation item, and sends it to the host computer 19 via the host-to-terminal communication process 125. The response data from the host computer 19 are transmitted to the reservation record reference message transmit/receive block 83 via the host-to-terminal

communication process 125. When a plurality of reservation record numbers are included in the response data, the reservation record reference message transmit/receive block 83 transmits the response data to the reservation record list display block 81. The reservation record list display block 81 displays a plurality of passenger names (or both passenger names and dates) in the reservation record in the reservation record candidate scroll selector 347 as a list on the reservation record reference image.

When a passenger name of one reservation record is clicked in a list of the reservation record candidate scroll selector 347 and further the transmit button 343 is clicked, the reservation record reference message transmit/receive block 83 forms a reservation record reference message of the clicked reservation record number and sends it to the host computer 19.

When the reference is made on the basis of a reservation record number at the beginning; when one reservation record number is designated from the list and then the reference is made again; or when there exists only one reservation record corresponding to the designated name or flight number, only a single reservation record data is included in the response data from the host computer 19. In this case, therefore, the reservation record reference message transmit/receive block 83 transmits the received response data to the reservation record display block 85. The reservation record display block 85 transmits the data to the reservation edit image display block 51 via the inter-process communication block 123, and simultaneously controls the image control block 119 to display the reservation edit image in front. As a result, the reservation record contents are displayed on the reservation edit image. The reservation record can be changed, cancelled or added on this reservation edit image.

In the reservation record reference image, there are provided a reservation record reference pictogram 331 for deleting this image, an interrupt button 345, a succeeding page button 353 and a redisplay button 347 for transmitting a message of displaying above list again.

The hotel reservation process will be described hereinbelow. This process is the one for reserving hotels and includes various functions shown by a hotel reservation image display block 87, a hotel reservation status inquiry message transmit/receive block 93, a reservation status display block 95, a reservation message transmit/receive block 99 and a hotel reservation result display block 101. These functions are basically the same as the similar functions of the flight number reservation process, except that there are some different points due to difference in reserved object between hotel and

flight number. Therefore, only the different points are explained hereinbelow.

The hotel reservation image display block 87 forms a hotel reservation image as shown in Fig. 11. In this image, the following peculiar parts for hotel reservation are provided. A city input box 357 displays a city name where hotels exist. This hotel designation can be performed by displaying the afore-mentioned domestic or international city designation image in front. An IN/OUT switch selector 371 is a parts for selecting any one of check-in date designation and check-out date designation. A designated check-in or check-out date is displayed in date boxes 373, 375, 377 and 379. These designations can be made on the afore-mentioned date designation image displayed in front. Room code/number select switches 381 and 391 are used to designate any one of room types and the number of rooms. The left side select switch 381 is used to designate single bed rooms, and the right side select switch 391 is used to designate double bed rooms. Room code select switches 383 and 393 are used to select a room type (charge). When "other" is selected with respect to the room type, since room type boxes 384 and 394 appear, the operator can input any given room type code through the keyboard 29. Room number boxes 385 and 395 are used to display the number of rooms designated through the keyboard 29 in usual. In these boxes, "1" is initially set in default of the number of rooms. Increment/decrement buttons 387, 389, 397 and 399 are used to increase or decrease the number of designated rooms. Location switch selector 401 is used to select an environment at which hotels exist. Sort select switch 403 is used to select a sort of hotel, and grade select switch 405 is used to select a grade of hotel. Other requirements for hotel can be inputted through the keyboard 29 and displayed in an additional information input box 407.

Among the above-mentioned items, when a city name and a date are designated at the minimum and further the transmit button 359 is clicked, the hotel reservation status inquiry message transmit/receive block 93 inquires the hotel reservation status of the designated items to the host computer 19. The reservation status data are returned from the host computer 19 to the reservation status display block 95, so that the hotel names, grades, room types (room charge), etc. are displayed as a list in a hotel list scroll selector 409.

When a required hotel is selected within the hotel list scroll selector 409 and further the transmit button 359 is clicked, a confirmation panel is displayed. By clicking a confirmation button there-within, the reservation message transmit/receive block 99 transmits the reservation message to the host computer 19. The response data are sent from

the host computer 19 to the hotel reservation result display block 10 to display a message of reservation acquisition in a message box 411. Simultaneously, since the response data are sent to a reservation edit image display block 51, the reserved hotel contents are displayed in the reservation content scroll selector 295 located at the lower part of the reservation edit image. To allow this display to be visible, the vertical dimension of the hotel reservation image is determined smaller (by that of the reservation content scroll selector 295) than the reservation edit image. Further, the vertical dimension of the tour reservation image (described hereinbelow) is also determined smaller in the same way.

The tour reservation process will be described hereinbelow. This process is basically the same as the flight number reservation process, similarly to the above-mentioned hotel reservation process. Only the different points will be explained hereinbelow.

A tour reservation image display block 103 forms a tour reservation image as shown in Fig. 12. In this image, the following peculiar parts are provided. A departure/period/price switch selector 415 is used to select anyone of the day of departure, the period of tour, and the price of tour. Date boxes 417 and 419 display a designated day of departure. This departure day can be designated on the date designation image. A period box 421 displays a designated period of tour and a price box 427 displays a designated price of tour. These designations can be made through the keyboard 29 in usual. Increment/decrement buttons 423 and 425 increases or decreases the period of tour. Increment/decrement button 429 and 431 increases or decreases the price of tour. City select switches 433 and 451 are used to select any one of a departure city and four visit cities at the maximum. A departure city box 433 displays a designated departure city. Four visit city boxes 437, 439, 453 and 455 display designated visit cities. These designations can be made in the international city designation image. A room type switch selector 457 is used to select a room type. When "other" is selected, since a room type box 459 appears, a desired room type code can be entered through the keyboard 29. A person number box 461 displays a number of designated tourists inputted through the keyboard 29 in usual. The number of tourists "1" is initially set in default. Increment/decrement switches 463 and 465 increases or decreases the number of tourists. A flight pattern switch selector 467 is used to select any one of three flight patterns. When "other" is selected, since a flight pattern box 469 appears, a desired flight pattern can be set through the keyboard 29. An additional information box 471 is used

to input additional information such as special requirements through the keyboard 29.

Among the above-mentioned items, when the day of departure and the visit cities are designated at the minimum, it is possible to inquire the reservation status by clicking the transmit button 441. The reservation status returned from the host computer 19 is displayed in a tour list scroll selector 473. In this list, tour codes, tour names, hotels, rooms, meals, flight patterns, prices, etc. are displayed.

When a desired tour is selected from the tour list and then the transmit button 441 is clicked, a reservation message is transmitted to the host computer 19. When response data are returned from the host computer 19, a message of reservation acquisition is displayed in a message box 475, and the response data are transmitted to the reservation edit image display block 51.

Motion picture display process 97 will be explained hereinbelow. After a desired hotel or tour has been selected from the hotel or tour list in the hotel or tour reservation image, when a visible part of the reservation edit image is clicked, the reservation edit image is displayed in front. Subsequently, when a motion picture (movie) tag image 261 in the reservation edit image is clicked, the motion picture process 97 is started. To this motion picture process 97, a hotel or tour code selected just now is transmitted via the inter-process communication block 123. The motion picture process 97 sends the selected code and a motion picture display image as shown in Fig. 13 to the image control block 119. This image control block 119 controls the AV device 15 to playback the hotel or tour motion picture corresponding to the selected code, so that the motion picture display image is arranged in front and further the corresponding motion picture is displayed in a motion picture area 479 within the motion picture display image. In this case, where some display modes such as image division, mosaic processing, picture standstill, etc. have previously been selected in a menu image (described later), the image control block 119 controls the motion picture so as to be displayed in the selected display mode. The motion picture display image can be deleted when a motion picture pictogram 477 is double clicked.

Finally, the menu control process 32 will be explained hereinbelow. This process is started when the menu button of the PD 30 is depressed, forms menu images as shown in Fig. 14A, and transmits these to the image control block 119, so that the menu image is displayed in front according to the cursor position. In this image, there are displayed a plurality of items (called parent items) such as "Reservation", "Change", "Execution", "Supplementary devices", "Color arrangement",

"Display management" etc. When either one of these parent items is clicked, some items (called child items) are displayed on the side of the parent item as shown in Figs. 4B-14D. Some major parent items will be explained hereinbelow in more detail.

Fig. 14B shows an example of display obtained when the parent item "Reservation" has been clicked. The child items are arranged in the order of "Next flight number", "Transmit", "Interrupt", and "Completion". When each of the child items is clicked, each corresponding operation can be executed in almost the same way as when the next flight number button, transmit button, interrupt button, and completion button displayed in the process image displayed just behind this menu image are clicked, respectively.

Fig. 14C shows an example of display obtained when the parent item "Change" is clicked. In this case, "Delete" and "Insert" are displayed as child items. For instance, in the case where this menu image is on the reservation edit image, if a reservation item required to be deleted is clicked in the reservation image and thereafter the child item "Delete" is clicked, it is possible to delete the reservation item. Further, when the passenger scroll selector 271 or the reservation content scroll selector 295 is clicked in the reservation edit image and thereafter the child item "Insert" is clicked, it is possible to add the passengers or reservation by use of the reservation edit image.

Fig. 14D shows an example obtained when the parent item "Color arrangement" is clicked. In this case, the color arrangement control process 34 is started to form a panel as shown in Fig. 14D. The formed panel is displayed on the lower right side of the CRT image, for instance. In this panel, there are provided 16 background color samples in boxes 481 and 483 and 16 color depth (shade) samples in boxes 487. When any desired color sample and color depth sample are clicked, a selected background color is displayed in an area 485. Here, if a confirmation button 491 is clicked, the color of the background image is changed into the selected background color for practical color confirmation. Subsequently, when a completion button 493 is clicked, the color of the background image is fixed to the selected background color. However, when a delete button 489 is clicked, this panel is deleted.

Fig. 14E shows an example of child items obtained when "Display management" is clicked. The process names whose window is currently open are arranged in order as child items. When either one of these process names is clicked, the image control block 119 displays the clicked process image in front. This function is convenient for displaying any required small image in front as when the small image is not visible behind a large

image and further there exists no tag image representative of the required small image in the large image.

Figs. 15 to 27 show flowcharts showing a series of reservation procedure processed in each of the above-mentioned processes, for assistance in understanding the function and the operation of the embodiment of the reservation system terminal according to the present invention in more clearness.

When the terminal is turned on, the reservation edition process is first started automatically. This reservation edition process will be described with reference to Fig. 15.

When data are inputted through the inter-process communications, the inputted data are displayed on the reservation edition image. When the reservation edition image is not displayed in front, the reservation edition can be selected in the menu processing (see Fig. 16). Or else, when a visible part of reservation edition image is clicked, the reservation edition image can be displayed in front. During the in-front display of the reservation edition image, when each tag image displayed on the reservation edition image (e.g. flight number reservation, reservation record reference, previous seat, hotel, tour, motion picture, etc.) is double clicked, a process corresponding to the clicked tag image is started, and its started process image is displayed in front. Under these conditions, the operator has access to the process displayed in front.

The flight number reservation process will be explained with reference to Figs. 17A, B and C. When the flight number reservation image is not displayed in front, the flight number reservation image can be displayed in front by selecting the flight number reservation process in the menu processing, clicking a visible part of the flight number reservation image, or double clicking the flight number reservation tag image displayed on the reservation edition image, as already described. During the in-front display of the flight number reservation image, when each tag image of the date designation, domestic city designation or the international city designation is double clicked, the process corresponding to the double-clicked tag image (Fig. 18, 19 or 20) is started and displayed in front on the image, date data and city data inputted in the date designation process, the domestic city designation process or the international city designation process are transferred to the flight number reservation process through the inter-process communications and then displayed on the flight number reservation image. When various buttons on the flight number reservation image are clicked, various operations corresponding to the clicked buttons can be executed such as inputted data display, message transmission to the host computer, response data reception from the host

computer, the received data display, etc. all described already. When the flight number reservation pictogram is double clicked, the flight number reservation image can be deleted.

Fig. 18 shows the date designation process. This date designation image can be displayed in front by selecting the date designation process in the menu processing, clicking a visible part of the date designation image or double clicking the date designation tag image on the other images (e.g. the flight number reservation image). During the in-front display of the date designation image, when any one of the date switches displayed on the image is clicked, the date data corresponding to the clicked switch are transferred to the reservation process through the inter-process communications. When the tag image of the flight number reservation, the domestic city designation or the international city designation displayed on the date designation image is double clicked, the process corresponding to the double-clicked tag image is displayed in front on the image (after having been started if the corresponding process is at halt).

Figs. 9A and B show the domestic city designation process. The domestic city designation image can be displayed in front by selecting the domestic city designation process in the menu processing, clicking a visible part of the domestic city designation image or double clicking the domestic city designation tag image on the other images. During the in-front display of the domestic city designation image, when the various switches or buttons are clicked, various operations related to the domestic city designation can be executed such as departure/arrival inputting, inputted data transferring to the flight number reservation process, etc. During the in-front display of the domestic city designation image, when either one of the flight number reservation tag image, the international city tag image, or the date designation tag image is double clicked, the process corresponding to the double-clicked tag image is displayed in front.

Figs. 20A and B show the international city designation process, which is basically the same in operation as the domestic city designation process.

The reservation edition process will be explained hereinbelow with reference to Figs. 21A to G.

The reservation edition image can be displayed in front by selecting the reservation edition process in the menu processing or clicking a visible part of the reservation edition image. As already explained, since the size of the reservation edition image is the largest in all, it is possible to display in front the reservation edition image at any reservation procedure. When a tag image of another process is double clicked on this image, a process

image corresponding to the double-clicked tag image is displayed in front. Further, various information processed in the other process and necessary for the reservation edition process is automatically transferred to the reservation edition process through the inter-process communications and then displayed on the reservation edition image. When various buttons or switches displayed on the reservation edition image are clicked or thereafter the keyboard is operated, various operations can be executed such that inputted data are displayed on the reservation image; messages are transmitted to the host computer; response data from the host computer are received and displayed; etc., as already explained.

Figs. 22A and B show the previous seat designation process. the previous seat designation image can be displayed in front by selecting the previous seat designation process in the menu processing, clicking a visible part of the previous seat designation image, or double-clicking the previous seat designation tag image on the reservation edition image. When various buttons on this image and lists within the scroll selector are clicked, various processing required for the previous seat designation process can be executed as already explained.

Figs. 23A and B show a seat chart process. This seat chart image can be displayed in front by selecting the seat chart process in the menu processing, clicking a visible part of the seat chart image or a seat chart button on the previous seat image. Whenever the seat buttons are clicked on the seat chart image, the clicked seat numbers can be saved. When various buttons on the seat chart image are clicked, various operations can be executed in correspondence to the clicked buttons as already explained.

The reservation record reference process will be explained with reference to Figs. 24A and B.

The reservation record reference image can be displayed in front by selecting the reservation record reference process in the menu processing, clicking a visible part of the reservation record reference image, or double-clicking the reservation record reference tag image on the reservation edition image. When various switches and buttons on this image are clicked, various operations corresponding to the clicked switches and buttons are executed, as already explained. When the contents of a specific reservation record is required to be referred to in this reservation record reference process, the contents are transferred to the reservation edition process automatically through the inter-process communications, and then displayed in front on the reservation edition image.

Figs. 25A, B and C show the hotel reservation process, and Figs. 26A, B and C show the tour

reservation process. These processes are basically similar to the flight number reservation process. That is, when various buttons and switches on the hotel or tour reservation image or lists within the scroll selector are clicked, various processing corresponding to the clicked parts can be executed.

Figs. 27A and B show the international city designation process started by double clicking the international city designation tag image on the hotel or tour reservation image. This process includes the processing of the international city designation process shown in Fig. 20. and the processing of the visit city designation.

Fig. 28 shows the motion picture process. The motion picture image can be displayed in front by selecting the motion picture process in the menu processing, clicking a visible part of the motion picture image, or double-clicking the motion picture tag image on the reservation edition image. Further, divided image or mosaic image processing or static image display can be executed. Further, the motion picture image can be deleted by double clicking the motion picture pictogram.

One preferred embodiment of the present invention has been explained by way of example as described above. Without being limited thereto, however, the present invention can be applied not only to a reservation system for only flight number, hotel or tour, but also to the reservation system for other transport facilities, theaters, restaurants, etc. Further, it is also possible to omit the aforementioned some process according to the required reservation objects and the number of observation items. In the case of the most simple system, for instance, the reservation process and the host-to-terminal communication process may be sufficient. Further, it is also possible to incorporate one of the above-mentioned various process with a conventional system. Furthermore, the composition of the images can be modified in various ways.

Claims

1. A reservation system terminal associated with a host computer for processing reservation status, which comprises:

(A) reserving means (35, 41, 43, 45, 47) for forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to said host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to said host computer, respectively;

(B) displaying means (119, 121, 17) for receiving the reservation images formed by said reserving

means, and forming and displaying a display image including the formed reservation image;
(C) pointing device means (30) for operating the parts arranged in the image displayed by said displaying means;

(D) part operation detecting means (31, 33) for detecting the part operated by said pointing device means; and

(E) host-to-terminal communicating means (125) for transmitting various messages to said host computer and receiving response data from said host computer.

and wherein said reserving means selectively executes the following steps of, on the basis of part pointing operation effected on the reservation image and detected by said part operation detecting means:

(a) displaying the inputted reservation item contents on the reservation image;

(b) forming a reservation status inquiry message for inquiring a reservation status related to the inputted reservation item contents, transmitting the inquiry message to said host computer via said host-to-terminal communicating means, receiving selectable reservation object information transmitted by said host computer via said host-to-terminal communicating means as response data to the transmitted inquiry message, and displaying the selectable reservation object information list in the reservation image;

(c) displaying the selected reservation object in the reservation image; and

(d) forming a reservation request message for requesting a reservation acquisition related to the selected reservation objects, transmitting the formed reservation request message to said host computer via said host-to-terminal communicating means, receiving acquired reservation content information transmitted by said host computer via said host-to-terminal communicating device as response data to the reservation acquisition request, and displaying the acquired reservation contents in the reservation image.

2. The reservation system terminal of claim 1, which further comprises motion picture playback means (15, 19) for playbacking a previously recorded motion picture related to the selected reservation object, said displaying means simultaneously displaying the reservation image formed by said reserving means and the motion picture playbacked by said motion picture playbacking means on the display image in overlapping arrangement condition.

3. A reservation system terminal associated with a host computer for processing reservation status, which comprises:

(A) reserving means (35, 41, 43, 45, 47) for forming a reservation image including a plurality

of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to said host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to said host computer, respectively;

(B) reservation item selecting means (37, 39) for forming a reservation item selection image including a plurality of parts for selecting any one of a plurality of predetermined selectable contents related to at least one specific item among the reservation items;

(C) displaying means (119, 121, 17) for receiving the reservation image formed by said reserving means and the reservation item selection image formed by said reservation item selecting means, and forming and displaying a display image including these two images arranged in overlapping condition;

(D) pointing device means (30) for operating the parts arranged in the display image displayed by said displaying means;

(E) part operation detecting means (31, 33) for detecting the part operated by said pointing device means;

(F) inter-terminal communicating means (123) connected between said reserving means and said reservation item selecting means, for allowing communications therebetween;

(G) host-to-terminal communicating means (125) for transmitting various messages to said host computer and receiving response data from said host computer; and

(H) said reservation item selecting means selecting one of the selectable contents on the basis of the part operation detected by said part operation detecting means in the reservation item selection image, and transmitting the selected contents to said reserving means via said inter-terminal communicating means as inputted contents related to the specific item.

and wherein said reserving means selectively executes the following steps of, on the basis of part pointing operation effected on the reservation image and detected by said part operation detecting means:

(a) displaying the inputted reservation item contents on the reservation image;

(b) forming a reservation status inquiry message for inquiring a reservation status related to the inputted reservation item contents, transmitting the inquiry message to said host computer via said host-to-terminal communicating means, receiving selectable reservation object information transmitted by said host computer via said host-to-terminal communicating means as response

data to the transmitted inquiry message, and displaying the selectable reservation object information list in the reservation image;

(c) displaying the selected reservation object in the reservation image; and

(d) forming a reservation request message for requesting a reservation acquisition related to the selected reservation objects, transmitting the formed reservation request message to said host computer via said host-to-terminal communicating means, receiving acquired reservation content information transmitted by said host computer via said host-to-terminal communicating device as response data to the reservation acquisition request, and displaying the acquired reservation contents in the reservation image.

4. The reservation system terminal of claim 3, wherein said inter-terminal communicating means is a memory unit accessible from both said reserving means and said reservation item selecting means in order to store information to be transmitted/received between said two means.

5. The reservation system terminal of claim 3 or 4, wherein said displaying means comprises image controlling means (119) for controlling arrangement of the reservation image and the reservation item selection image according to part operation detected by said part operation detecting means.

6. A reservation system terminal associated with a host computer for processing reservation status, which comprises:

(A) reserving means (35, 41, 43, 45, 47) for forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to said host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to said host computer, respectively;

(B) reservation editing means (51, 53, 55, 57) for forming a reservation edition image including arranged parts for inputting contents related to predetermined detailed reservation items, and requesting a reservation record preparation related to the inputted detailed reservation item contents and already-acquired reservations to said host computer;

(C) displaying means (119, 121, 17) for receiving the reservation image formed by said reserving means and the reservation edition image formed by said reservation editing means, and forming and displaying a display image including these two images arranged in overlapping condition;

(D) pointing device means (30) for operating the parts arranged in the image displayed by said

displaying means;

(E) part operation detecting means (31, 33) for detecting the part operated by said pointing device means;

(F) inter-terminal communicating means (123) connected between said reserving means and said reservation editing means, for allowing communications therebetween; and

(G) host-to-terminal communicating means (125) for transmitting various messages to said host computer and receiving response data from said host computer.

and wherein said reserving means selectively executes the following steps of, on the basis of part pointing operation effected on the reservation image and detected by said part operation detecting means:

(a) displaying the inputted reservation item contents on the reservation image;

(b) forming a reservation status inquiry message for inquiring a reservation status related to the inputted reservation item contents, transmitting the inquiry message to said host computer via said host-to-terminal communicating means, receiving selectable reservation object information transmitted by said host computer via said host-to-terminal communicating means as response data to the transmitted reservation status inquiry message, and displaying the selectable reservation object information list in the reservation image;

(c) displaying the selected reservation object in the reservation image; and

(d) forming a reservation request message for requesting a reservation acquisition related to the selected reservation objects, transmitting the formed reservation request message to said host computer via said host-to-terminal communicating means, receiving acquired reservation content information transmitted by said host computer via said host-to-terminal communicating device as response data to the reservation acquisition request, displaying the acquired reservation contents in the reservation image, and transmitting the acquired reservation contents to said reservation editing means via said inter-terminal communicating means.

and wherein said reservation editing means selectively executes the following steps of, on the basis of part pointing operation effected on the reservation edit image and detected by said part operation detecting means; and

(e) displaying the inputted detailed reservation item contents in the reservation edition image; and

(f) forming a reservation record preparation request message for requesting a reservation record preparation related to the inputted de-

tailed reservation item contents and the acquired reservation contents, and transmitting the formed request message to said host computer via said host-to-terminal communicating means.

7. The reservation system terminal of claim 6, wherein said inter-terminal communicating means is a memory unit accessible from both said reserving means and said reservation editing means in order to store information to be transmitted/received between said two means.

8. The reservation system terminal of claim 6 or 7, wherein said displaying means comprises image controlling means (119) for controlling arrangement of the reservation image and the reservation edition image according to part operation detected by said part operation detecting means.

9. A reservation system terminal associated with a host computer for processing reservation status, which comprises:

(A) reservation record referring means (71, 73, 81, 83, 85) for forming a reservation record reference image including a plurality of parts for inputting contents related to predetermined reservation record reference items, referring to an already-prepared reservation record related to the inputted reservation record reference item contents to said host computer, displaying the reference and prepared reservation record, and referring to the reservation record contents related to the selected and prepared reservation record to said host computer;

(B) reservation editing means (51, 53, 55, 57) for forming a reservation edition image including a plurality of parts for inputting contents to be changed related to predetermined detailed reservation items; and requesting change in the selected and prepared reservation record related to the inputted detailed reservation item contents to be changed to said host computer;

(C) displaying means (119, 121, 17) for receiving the reservation image formed by said reservation record preparing means and the reservation edition image formed by said reservation editing means, and forming and displaying a display image including these two images arranged in overlapping condition;

(D) pointing device means (30) for operating the parts arranged in the display image displayed by said displaying means;

(E) part operation detecting means (31, 33) for detecting the part operated by said pointing device means;

(F) inter-terminal communicating means (123) connected between said reservation record referring means and said reservation editing means, for allowing communications therebetween; and

(G) host-to-terminal communicating means

(125) for transmitting various messages to said host computer and receiving response data from said host computer,

and wherein said reservation record referring means selectively executes the following steps of, on the basis of part pointing operations effected on the reservation record reference image and detected by said part operation detecting means:

(a) displaying the inputted reservation record reference item contents on the reservation record reference image;

(b) forming a reservation record reference message for referring to the prepared reservation record reference related to the inputted reservation record reference item contents, transmitting the reference message to said host computer via said host-to-terminal communicating means, receiving the prepared reservation record information transmitted by said host computer via said host-to-terminal communicating means as response data to the transmitted reference message, and displaying the prepared reservation record list in the reservation image; and

(c) forming a reservation record reference message for referring to the reservation record contents related to the selected and prepared reservation record, transmitting the formed reservation record reference message to said host computer via said host-to-terminal communicating means, receiving the selected reservation record content information transmitted by said host computer via said host-to-terminal communicating device as response data to the reservation record reference, and transmitting the reservation record contents to said reservation recording means via said inter-terminal communicating means,

and wherein said reservation editing means selectively executes the following steps of, on the basis of part pointing operation effected on the reservation edit image and detected by said part operation detecting means; and

(d) displaying the inputted detailed reservation item contents in the reservation edition image; and

(e) forming a reservation record change request message for requesting a change in the selected reservation record related to a change in the inputted detailed reservation item contents, and transmitting the formed change request message to said host computer via said host-to-terminal communicating means.

10. The reservation system terminal of claim 9, wherein said inter-terminal communicating means is a memory unit accessible from both said reservation record referring means and said reservation editing means in order to store information to be transmitted/received between said two means.

11. The reservation system terminal of claim 9 or 10, wherein said displaying means comprises image controlling means (119) for controlling arrangement of the reservation record reference image and the reservation edition image according to part operation detected by said part operation detecting means.

12. A reservation system terminal associated with a host computer for processing reservation status, which comprises:

(A) reserving means (35, 41, 43, 45, 47) for forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to said host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to said host computer, respectively;

(B) reservation record referring means (71, 73, 81, 83, 85) for forming a reservation record reference image including a plurality of parts for inputting contents related to predetermined reservation record reference items, referring to an already-prepared reservation record related to the inputted reservation record reference item contents to said host computer, displaying the reference and prepared reservation record, and referring to the reservation record contents related to the selected and prepared reservation record to said host computer;

(C) reservation editing means (51, 53, 55, 57) for forming a reservation edition image including arranged parts for inputting contents related to predetermined detailed reservation items, requesting a reservation record preparation related to the inputted detailed reservation item contents and already-acquired reservations to said host computer, inputting contents to be changed related to predetermined detailed reservation items, and requesting change in the selected and prepared reservation record related to the inputted detailed reservation item contents to be changed to said host computer;

(D) displaying means (119, 121, 17) for receiving the reservation image formed by said reserving means, the reservation record reference image formed by said reservation record referring means, and the reservation edition image formed by said reservation editing means, and forming and displaying a display image including these three images arranged in overlapping condition;

(E) pointing device means (30) for operating the parts arranged in the image displayed by said displaying means;

(F) part operation detecting means (31, 33) for

detecting the part operated by said pointing device means;

(G) inter-terminal communicating means (123) connected between said reserving means, said reservation record referring means and said reservation editing means, for allowing communications therebetween; and

(H) host-to-terminal communicating means (125) for transmitting various messages to said host computer and for receiving response data from said host computer,

and wherein said reservation means selectively executes the following steps of, on the basis of the part pointing operation effected on the reservation image and detected by said part operation detecting means;

(a) displaying the inputted reservation item contents on the reservation image;

(b) forming a reservation status inquiry message for inquiring the reservation status related to the inputted reservation item contents, transmitting the inquiry message to said host computer via said host-to-terminal communicating means, receiving selectable reservation object information transmitted by said host computer via said host-to-terminal communicating means as response data to the transmitted reservation status inquiry message, and displaying the selectable reservation object information list in the reservation image;

(c) displaying the selected reservation object in the reservation image; and

(d) forming a reservation request message for requesting a reservation acquisition related to the selected reservation objects, transmitting the formed reservation request message to said host computer via said host-to-terminal communication means, receiving acquired reservation content information transmitted by said host computer via said host-to-terminal communicating device as response data to the reservation acquisition request, displaying the acquired reservation contents in the reservation image, and transmitting the acquired reservation contents to said reservation editing means via said inter-terminal communicating means.

and wherein said reservation record referring means selectively executes the following steps of, on the basis of part pointing operations effected on the reservation record reference image and detected by said part operation detecting means;

(e) displaying the inputted reservation record reference item contents on the reservation record reference image;

(f) forming a reservation record reference message for referring to the prepared reservation record reference related to the inputted reservation record reference item contents, transmitting

the reference message to said host computer via said host-to-terminal communicating means, receiving the prepared reservation record information transmitted by said host computer via said host-to-terminal communicating means as response data to the transmitted reference message, and displaying the prepared reservation record list in the reservation image; and

(g) forming a reservation record reference message for referring to the reservation record contents related to the selected and prepared reservation record, transmitting the formed reservation record reference message to said host computer via said host-to-terminal communicating means, receiving the selected reservation record content information transmitted by said host computer via said host-to-terminal communicating device as response data to the reservation record reference, and transmitting the reservation record contents to said reservation recording means via said inter-terminal communicating means,

and wherein said reservation editing means selectively executes the following steps of, on the basis of part pointing operation on the reservation edit image and detected by said part operation detecting means;

(h) displaying the inputted detailed reservation item contents in the reservation edition image;

(i) forming a reservation record preparation request message for requesting a reservation record preparation related to the inputted detailed reservation item contents and the acquired reservation contents, and transmitting the formed request message to said host computer via said host-to-terminal communicating means; and

(j) displaying the inputted detailed reservation item contents in the reservation edition image; and

(k) forming a reservation record change request message for requesting a change in the selected reservation record related to a change in the inputted detailed reservation item contents, and transmitting the formed change request message to said host computer via said host-to-terminal communicating means.

13. The reservation system terminal of claim 12, wherein said inter-terminal communicating means is a memory unit accessible from any of said reserving means, reservation record referring means and said reservation editing means in order to store information to be transmitted/received among said three means.

14. The reservation system terminal of claim 12 or 13, wherein said displaying means comprises image controlling means (119) for controlling arrangement of the reservation image, the reservation

record reference image and the reservation edition image according to part operation detected by said part operation detecting means.

15. A method of operating a terminal computer incorporated in a reservation system terminal associated with a host computer for processing reservation status and provided with a display unit coupled to the terminal computer to display images and with a pointing device also coupled to the terminal computer to point visible parts on the displayed image, comprising the steps of:

(A) forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to the host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to the host computer, respectively;

(B) forming a display image including the formed reservation image, and transmitting the formed display image to the display unit for display;

(C) detecting a part operated by the pointing device on the displayed image;

(D) if a part pointing operation for inputting the contents of the reservation item is detected, displaying the inputted reservation item contents on the reservation image;

(E) if a part pointing operation for inquiring the reservation status is detected after the inputted reservation item contents have been displayed, forming a reservation status inquiry message for inquiring the reservation status related to the inputted reservation item contents;

(F) transmitting the formed reservation status inquiry message to the host computer;

(G) receiving reservation status information indicative of selectable reservation object transmitted from the host computer in response to the inquiry message;

(H) forming a list indicative of the selectable reservation object on the basis of the reservation status information, and displaying the formed list related to the part for selecting the reservation object on the reservation image;

(I) if a part pointing operation for selecting the reservation object is detected after the reservation object list has been displayed, displaying the reservation object selected by the part pointing operation on the reservation image;

(J) if a part pointing operation for requesting the reservation acquisition is detected after the selected reservation object has been displayed, forming a reservation request message for requesting a reservation acquisition related to the selected reservation object;

(K) transmitting the formed reservation request message to the host computer;

(L) receiving reservation acquisition information indicative of the contents of acquired reservation transmitted from the host computer in response to the reservation request message; and

(M) displaying the acquired reservation contents on the reservation image on the basis of the acquired reservation information.

16. A method of operating a terminal computer incorporated in a reservation system terminal associated with a host computer for processing reservation status and provided with a display unit coupled to the terminal computer to display images and with a pointing device also coupled to the terminal computer to point visible parts on the displayed image, comprising the steps of:

(A) forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to the host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to the host computer, respectively;

(B) forming a reservation item selection image including parts for selecting one content from a plurality of selectable contents previously determined with respect to at least one specific item among the reservation items;

(C) forming a multidisplay image including the reservation image and the reservation item selection image, and transmitting the formed multidisplay image to the display unit for display;

(D) detecting a part operated by the pointing device on the displayed image;

(E) if a part pointing operation is detected on the reservation item selection image, transmitting one content selected by the part pointing operation to the reservation image as the content inputted in relation to the specific item, and displaying the transmitted content on the reservation image;

(F) if a part pointing operation for inputting the contents of the reservation item is detected, displaying the inputted reservation item contents on the reservation image;

(G) if a part pointing operation for inquiring the reservation status is detected after the inputted reservation item contents have been displayed, forming a reservation status inquiry message for inquiring the reservation status related to the inputted reservation item contents;

(H) transmitting the formed reservation status inquiry message to the host computer;

(I) receiving reservation status information indicative of selectable reservation object transmit-

ted from the host computer in response to the inquiry message;

(J) forming a list indicative of the selectable reservation object on the basis of the reservation status information, and displaying the formed list related to the part for selecting the reservation object on the reservation image;

(K) if a part pointing operation for selecting the reservation object is detected after the reservation object list has been displayed, displaying the reservation object selected by the part pointing operation on the reservation image;

(L) if a part pointing operation for requesting the reservation acquisition is detected after the selected reservation object has been displayed, forming a reservation request message for requesting a reservation acquisition related to the selected reservation object;

(M) transmitting the formed reservation request message to the host computer;

(N) receiving reservation acquisition information indicative of the contents of acquired reservation transmitted from the host computer in response to the reservation request message; and

(O) displaying the acquired reservation contents on the reservation image on the basis of the acquired reservation information.

17. The method of operating a terminal computer of claim 16, which further comprises a step of controlling arrangement of the reservation image and the reservation item selection image, according to the detected part pointing operation.

18. A method of operating a terminal computer incorporated in a reservation system terminal associated with a host computer for processing reservation status and provided with a display unit coupled to the terminal computer to display images and with a pointing device also coupled to the terminal computer to point visible parts on the displayed image, comprising the steps of:

(A) forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to the host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to the host computer, respectively;

(B) forming a reservation image including a plurality of parts for inputting contents related to predetermined detailed reservation items, and requesting reservation record formation as to the inputted contents of the predetermined detailed reservation items and of the already acquired reservation to the host computer;

(C) forming a multidisplay image including the reservation image and the reservation item se-

lection image, and transmitting the formed multidisplayed image to the display unit for display;

(D) detecting a part operated by the pointing device on the displayed image;

(E) if a part pointing operation for inputting the contents of the reservation item is detected, displaying the inputted reservation item contents on the reservation image;

(F) if a part pointing operation for inquiring the reservation status is detected after the inputted reservation item contents have been displayed, forming a reservation status inquiry message for inquiring the reservation status related to the inputted reservation item contents;

(G) transmitting the formed reservation status inquiry message to the host computer;

(H) receiving reservation status information indicative of selectable reservation object transmitted from the host computer in response to the inquiry message;

(I) forming a list indicative of the selectable reservation object on the basis of the reservation status information, and displaying the formed list related to the part for selecting the reservation object on the reservation image;

(J) if a part pointing operation for selecting the reservation object is detected after the reservation object list has been displayed, displaying the reservation object selected by the part pointing operation on the reservation image;

(K) if a part pointing operation for requesting the reservation acquisition is detected after the selected reservation object has been displayed, forming a reservation request message for requesting a reservation acquisition related to the selected reservation object;

(L) transmitting the formed reservation request message to the host computer;

(M) receiving reservation acquisition information indicative of the contents of acquired reservation transmitted from the host computer in response to the reservation request message;

(N) displaying the acquired reservation contents on the reservation image on the basis of the acquired reservation information;

(O) displaying the acquired reservation contents on the reservation edition image;

(P) if a part pointing operation for inputting the detailed reservation item contents is detected, displaying the detailed reservation item contents inputted by the detected part pointing operation on the reservation edition image;

(Q) if a part pointing operation for requesting the reservation record formation after the acquired reservation contents have been displayed and further the inputted detailed reservation item contents have been displayed, forming a reservation record preparation request message for

requesting a reservation record preparation related to the inputted detailed reservation item contents and the acquired reservation contents; and

(R) transmitting the formed reservation record preparation request message to the host computer.

19. The method of operating a terminal computer of claim 18, which further comprises a step of controlling arrangement of the reservation image and the reservation edition image, according to the detected part pointing operation.

20. A method of operating a terminal computer incorporated in a reservation system terminal associated with a host computer for processing reservation status and provided with a display unit coupled to the terminal computer to display images and with a pointing device also coupled to the terminal computer to point visible parts on the displayed image, comprising the steps of:

(A) forming a reservation record reference image including a plurality of parts for inputting contents related to predetermined reservation record reference items, referring to an already-prepared reservation record related to the inputted reservation record reference item contents to the host computer, selecting the referred and already-prepared reservation record, and referring to reservation record contents related to the selected and already-prepared reservation record to the host computer;

(B) forming a reservation edition image including a plurality of parts for inputting contents to be changed related to predetermined detailed reservation items, and requesting change in the selected and already-prepared reservation record related to the inputted detailed reservation item contents to be changed to the host computer;

(C) forming a multidisplay image including the reservation image and the reservation edition image, and transmitting the formed multidisplay image to the display unit for display;

(D) detecting a part operated by the pointing device on the displayed image;

(E) if a part pointing operation for inputting contents related to the reservation record reference items is detected, forming a reservation record reference message for referring to the prepared reservation record reference related to the inputted reservation record reference item contents;

(F) if a part pointing operation for referring to the reservation record reference is detected after the inputted contents of the reservation record reference items have been displayed, forming a reservation record reference message for referring to the prepared reservation record reference related to the inputted reservation record

reference item contents;

(G) transmitting the formed reservation record reference message to the host computer;

(H) receiving reservation record information indicative of the prepared reservation record transmitted from the host computer in response to the reference message;

(I) forming the prepared reservation record list on the basis of the reservation record information, and displaying the formed list related to a part for selecting the reservation record on the reservation record reference image;

(J) if a part pointing operation for selecting the reservation record is detected, forming a reservation record content reference message for referring to the reservation record contents related to the prepared reservation record selected by the part pointing operation;

(K) transmitting the formed reservation record content reference message to the host computer;

(L) receiving reservation record content information indicative of the selected reservation record contents transmitted from the host computer in response to the reservation record content reference message;

(M) displaying the selected reservation record contents obtained on the basis of the reservation record content information on the reservation edition image;

(N) if a part pointing operation for inputting the contents to be changed is detected, displaying the detailed reservation item contents inputted by the part pointing operation on the reservation edition image;

(O) if a part pointing operation for requesting the reservation record change is detected after the contents to be changed have been displayed, forming a reservation record change request message for requesting change in the selected reservation record related to the inputted detailed reservation item contents to be changed; and

(P) transmitting the formed reservation record change request message to the host computer.

22. A method of operating a terminal computer incorporated in a reservation system terminal associated with a host computer for processing reservation status and provided with a display unit coupled to the terminal computer to display images and with a pointing device also coupled to the terminal computer to point visible parts on the displayed image, comprising the steps of:

(A) forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a reservation status related to the inputted reservation item contents to the host computer, select-

ing any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to the host computer, respectively;

(B) forming a reservation record reference image including a plurality of parts for inputting contents related to predetermined reservation record reference items, referring to an already-prepared reservation record related to the inputted reservation record reference item contents to the host computer, selecting the referred to and already-prepared reservation record, and referring to reservation record contents related to the selected and already-prepared reservation record to the host computer;

(C) forming a reservation edition image including a plurality of parts for inputting contents related to predetermined detailed reservation items, requesting reservation record preparation related to the inputted detailed reservation item contents and the already acquired reservation to the host computer, inputting contents to be changed related to predetermined detailed reservation items, and requesting change in the selected and already-prepared reservation record related to the inputted detailed reservation item contents to be changed to the host computer;

(D) forming a multidisplay image including the reservation image, the reservation record reference image, and the reservation edition image, and transmitting the formed multidisplayed image to the display unit for display;

(E) detecting a part operated by the pointing device;

(F) if a part pointing operation for inputting the reservation item contents is detected, displaying the inputted reservation item contents on the reservation image;

(G) if a part pointing operation for inquiring the reservation status is detected after the inputted reservation item contents have been detected, forming a reservation status inquiry message for inquiring the reservation status related to the inputted reservation item contents;

(H) transmitting the formed reservation status inquiry message to the host computer;

(I) receiving reservation status information indicative of selectable reservation objects transmitted from the host computer in response to the formed inquiry message;

(J) forming the selectable reservation object list on the basis of the reservation status information, and displaying the formed list related to a part for selecting the reservation objects on the reservation image;

(K) if a part pointing operation for selecting the reservation objects is detected after the reservation object list has been displayed, displaying

the reservation object selected by the part pointing operation on the reservation image;

(L) if a part pointing operation for requesting the reservation acquisition is detected after the selected reservation object has been displayed, forming a reservation request message for requesting the reservation acquisition related to the selected reservation object;

(M) transmitting the formed reservation request message to the host computer;

(N) receiving acquisition reservation information indicative of the acquired reservation contents transmitted from the host computer in response to the reservation request message;

(O) displaying the reservation contents acquired on the basis of the acquisition reservation information on the reservation image;

(P) displaying the acquired reservation contents on the reservation edition image;

(Q) if a part pointing operation for inputting contents related to the reservation record reference items is detected, forming a reservation record reference message for referring to the prepared reservation record reference related to the inputted reservation record reference item contents;

(R) if a part pointing operation for referring to the reservation record reference is detected after the inputted contents of the reservation record reference items have been displayed, forming a reservation record reference message for referring to the prepared reservation record reference related to the inputted reservation record reference item contents;

(S) transmitting the formed reservation record reference message to the host computer;

(T) receiving reservation record information indicative of the prepared reservation record transmitted from the host computer in response to the reference message;

(U) forming the prepared reservation record list on the basis of the reservation record information, and displaying the formed list related to a part for selecting the reservation record on the reservation record reference image;

(V) if a part pointing operation for selecting the reservation record is detected, forming a reservation record content reference message for referring to the reservation record contents related to the prepared reservation record selected by the part pointing operation;

(W) transmitting the formed reservation record content reference message to the host computer;

(X) receiving reservation record content information indicative of the selected reservation record contents transmitted from the host computer in response to the reservation record content refer-

ence message;

(Y) displaying the selected reservation record contents obtained on the basis of the reservation record content information on the reservation edition image;

(Z) if a part pointing operation for inputting the detailed reservation item contents is detected, displaying the detailed reservation item contents inputted by the part pointing operation on the reservation edition image;

(AA) if a part pointing operation for requesting the reservation record preparation is detected after the acquired reservation contents have been displayed and after the inputted detailed reservation item contents have been displayed, forming a reservation record preparation request message for requesting the reservation record preparation related to the inputted detailed reservation item contents and the acquired reservation contents;

(AB) transmitting the formed reservation record preparation request message to the host computer;

(AC) if a part pointing operation for inputting the contents to be changed is detected, displaying the detailed reservation item contents inputted by the part pointing operation on the reservation edition image;

(AD) if a part pointing operation for requesting the reservation record change is detected after the contents to be changed have been displayed, forming a reservation record change request message for requesting the selected reservation record change related to the inputted detailed reservation item contents to be changed; and

(AE) transmitting the formed reservation record change request message to the host computer.

23. The method of operating a terminal computer of claim 22, which further comprises a step of controlling arrangement of the reservation image, the reservation record reference image, and the reservation edition image, according to the detected part pointing operation.

24. A method of operating a terminal computer incorporated in a reservation system terminal associated with a host computer for processing reservation status and provided with a display unit coupled to the terminal computer to display images and with a pointing device also coupled to the terminal computer to point visible parts on the displayed image, and with a motion picture playing-back unit coupled to the terminal computer to playback previously recorded motion pictures, comprising the steps of:

(A) forming a reservation image including a plurality of parts for inputting contents related to predetermined reservation items, inquiring a res-

ervation status related to the inputted reservation item contents to the host computer, selecting any one of reservation objects, and requesting a reservation acquisition related to the selected reservation object to the host computer, respectively;

(B) forming a multidisplay image including the formed reservation image and a motion picture played back by the motion picture unit, and transmitting the formed multidisplay image to the display unit for display;

(C) detecting a part operated by the pointing device on the displayed image;

(D) if a part pointing operation for inputting the contents of the reservation item is detected, displaying the inputted reservation item contents on the reservation image;

(E) if a part pointing operation for inquiring the reservation status is detected after the inputted reservation item contents have been displayed, forming a reservation status inquiry message for inquiring the reservation status related to the inputted reservation item contents;

(F) transmitting the formed reservation status inquiry message to the host computer;

(G) receiving reservation status information indicative of selectable reservation object transmitted from the host computer in response to the inquiry message;

(H) forming a list indicative of the selectable reservation object on the basis of the reservation status information, and displaying the formed list related to the part for selecting the reservation object on the reservation image;

(I) if a part pointing operation for selecting the reservation object is detected after the reservation object list has been displayed, displaying the reservation object selected by the part pointing operation on the reservation image;

(J) if a part pointing operation for requesting the reservation acquisition is detected after the selected reservation object has been displayed, forming a reservation request message for requesting a reservation acquisition related to the selected reservation object;

(K) transmitting the formed reservation request message to the host computer;

(L) receiving reservation acquisition information indicative of the contents of acquired reservation transmitted from the host computer in response to the reservation request message; and

(M) displaying the acquired reservation contents on the reservation image on the basis of the acquired reservation information.

55

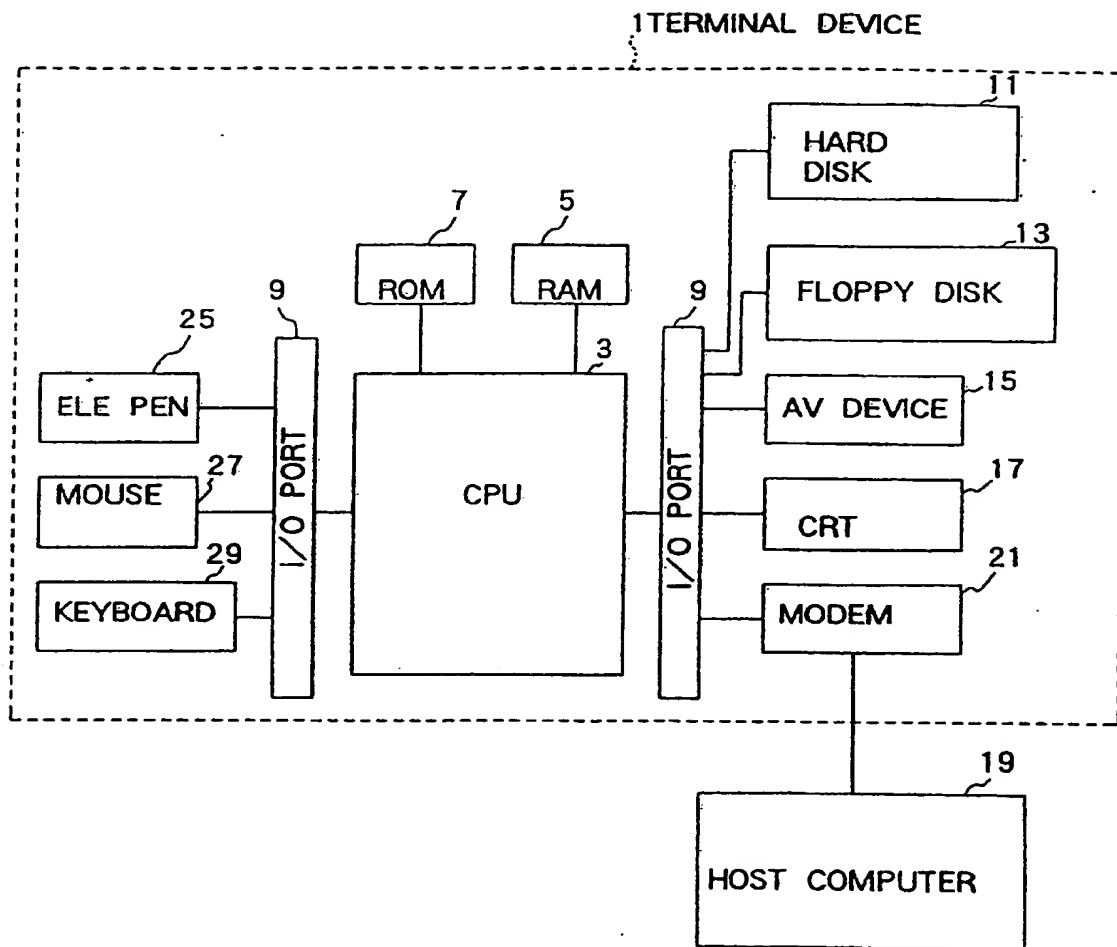


FIG.1

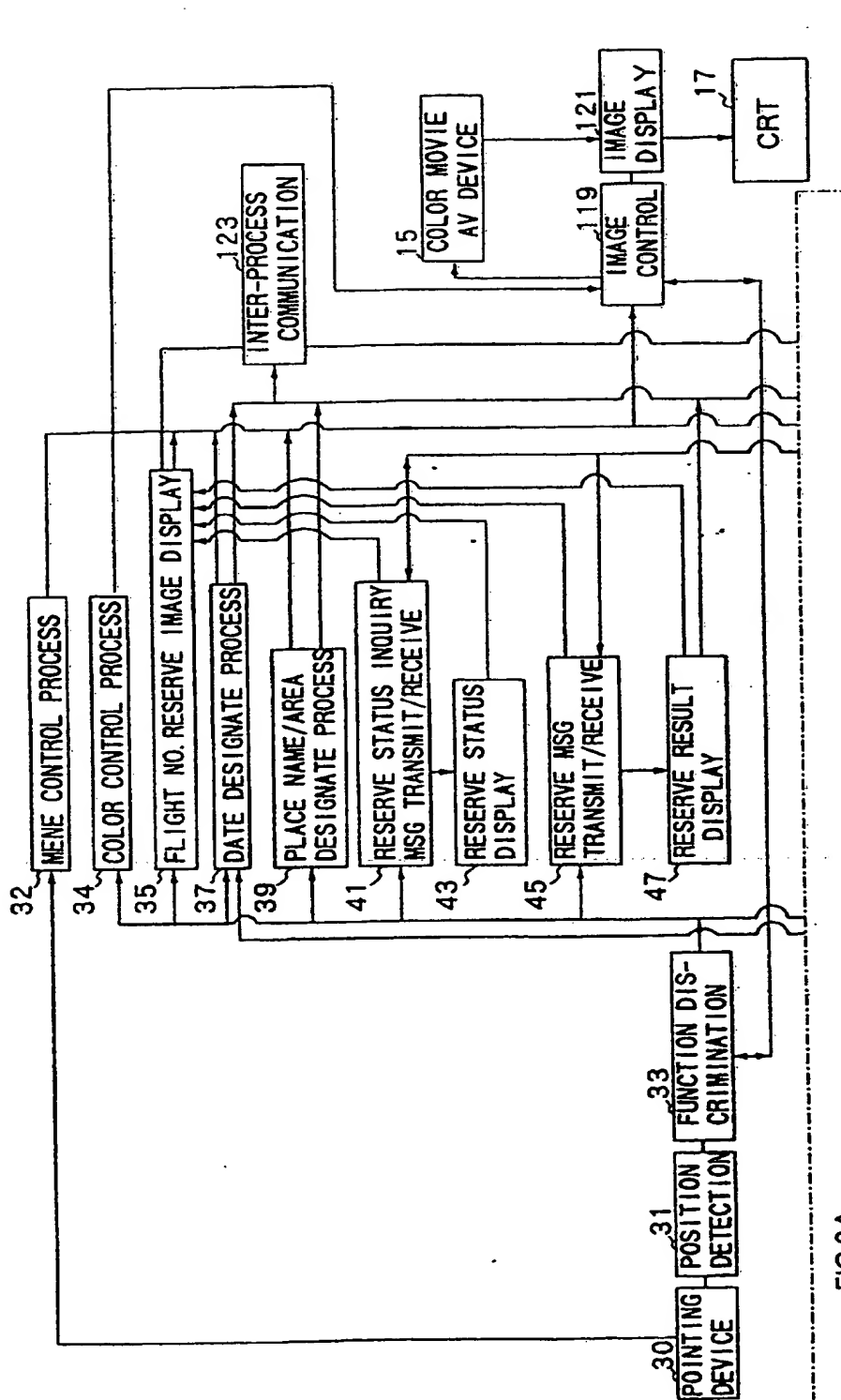


FIG.2A I

FIG.2A

FIG.2A I

FIG.2A II

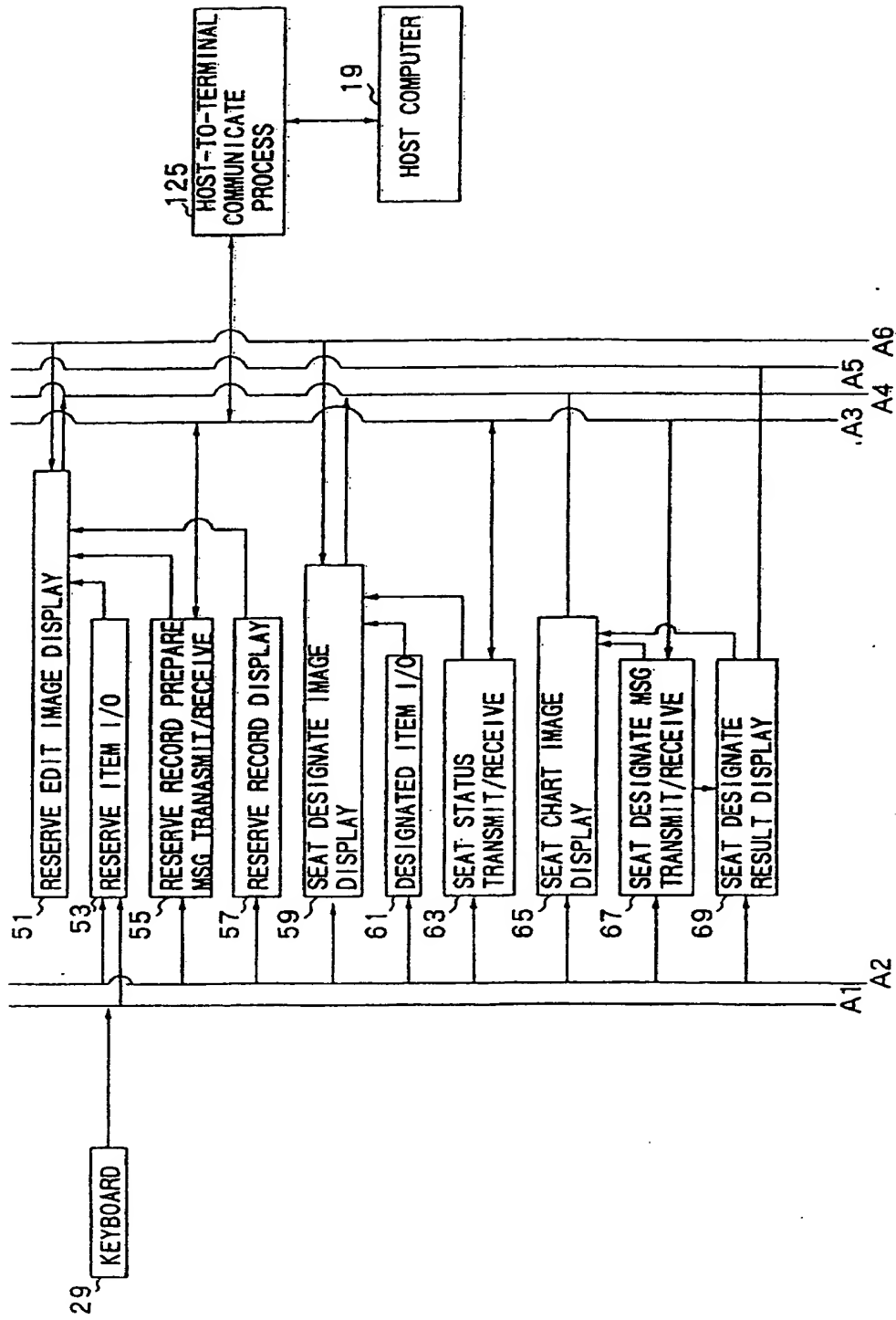


FIG.2A II

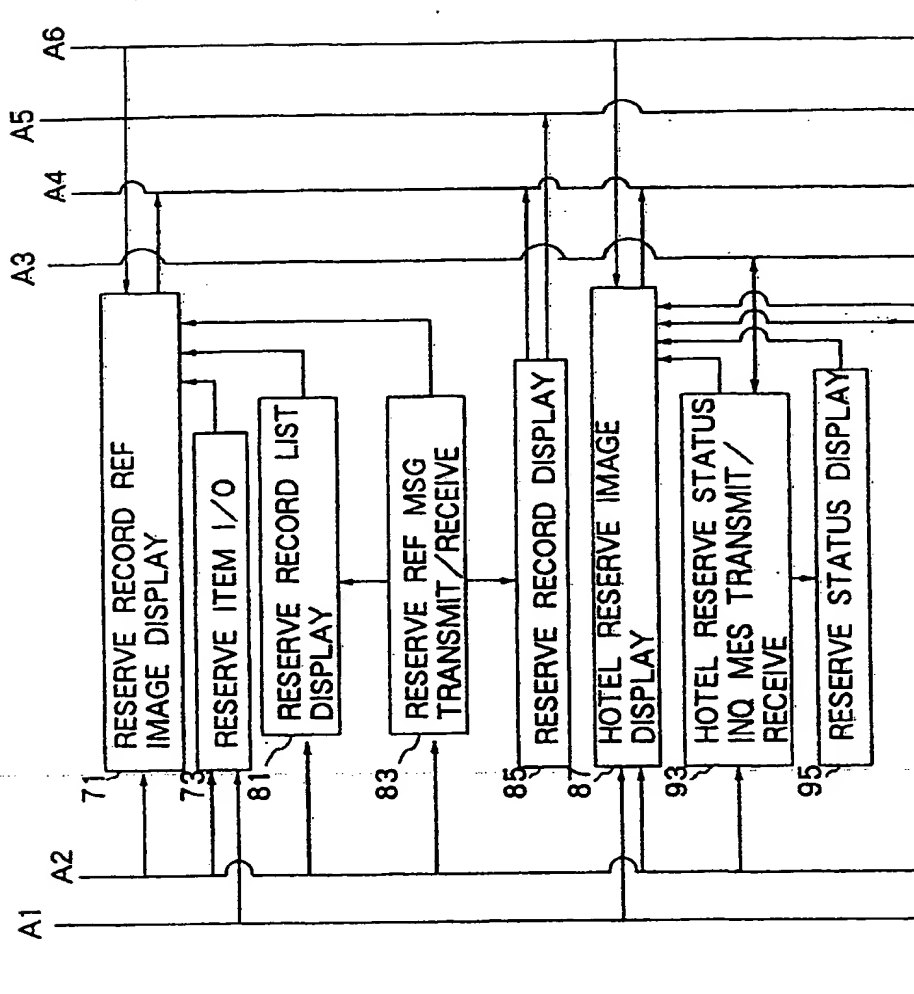


FIG.2B I

FIG.2B I
FIG.2B II

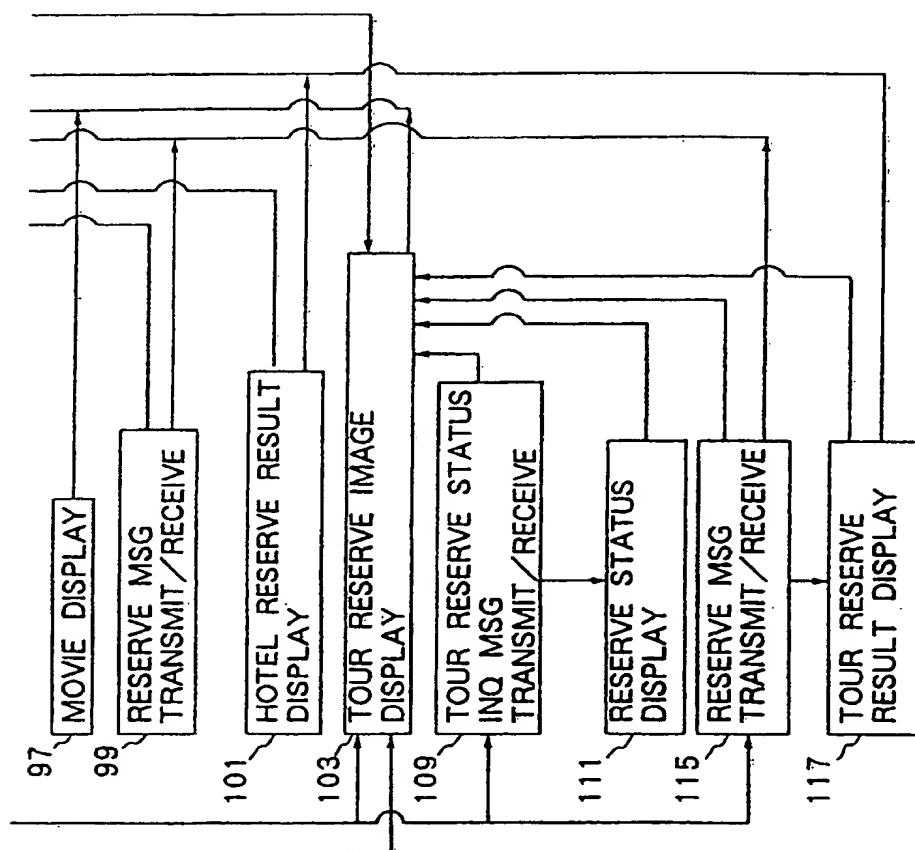


FIG.2B II

FIG. 3

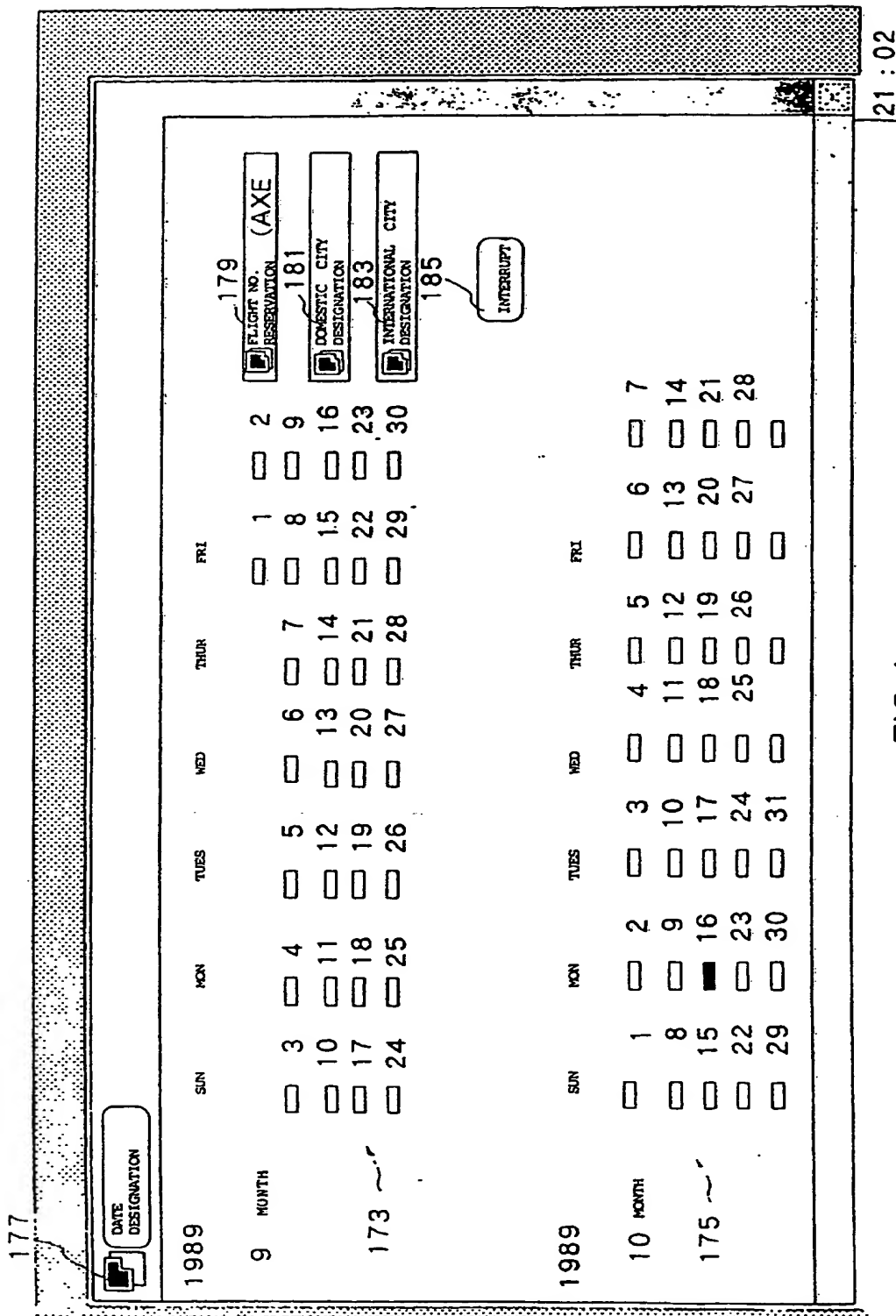
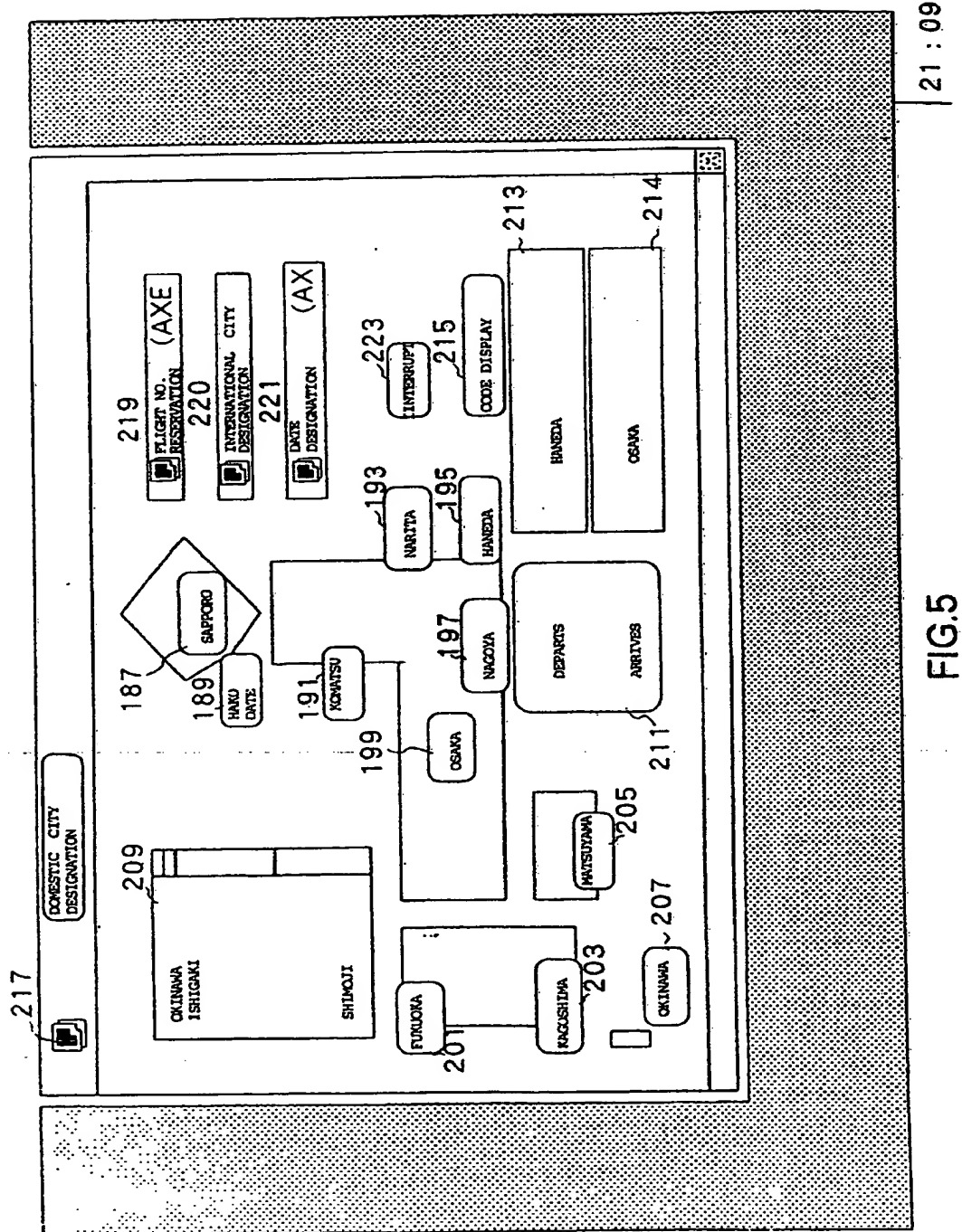


FIG.4



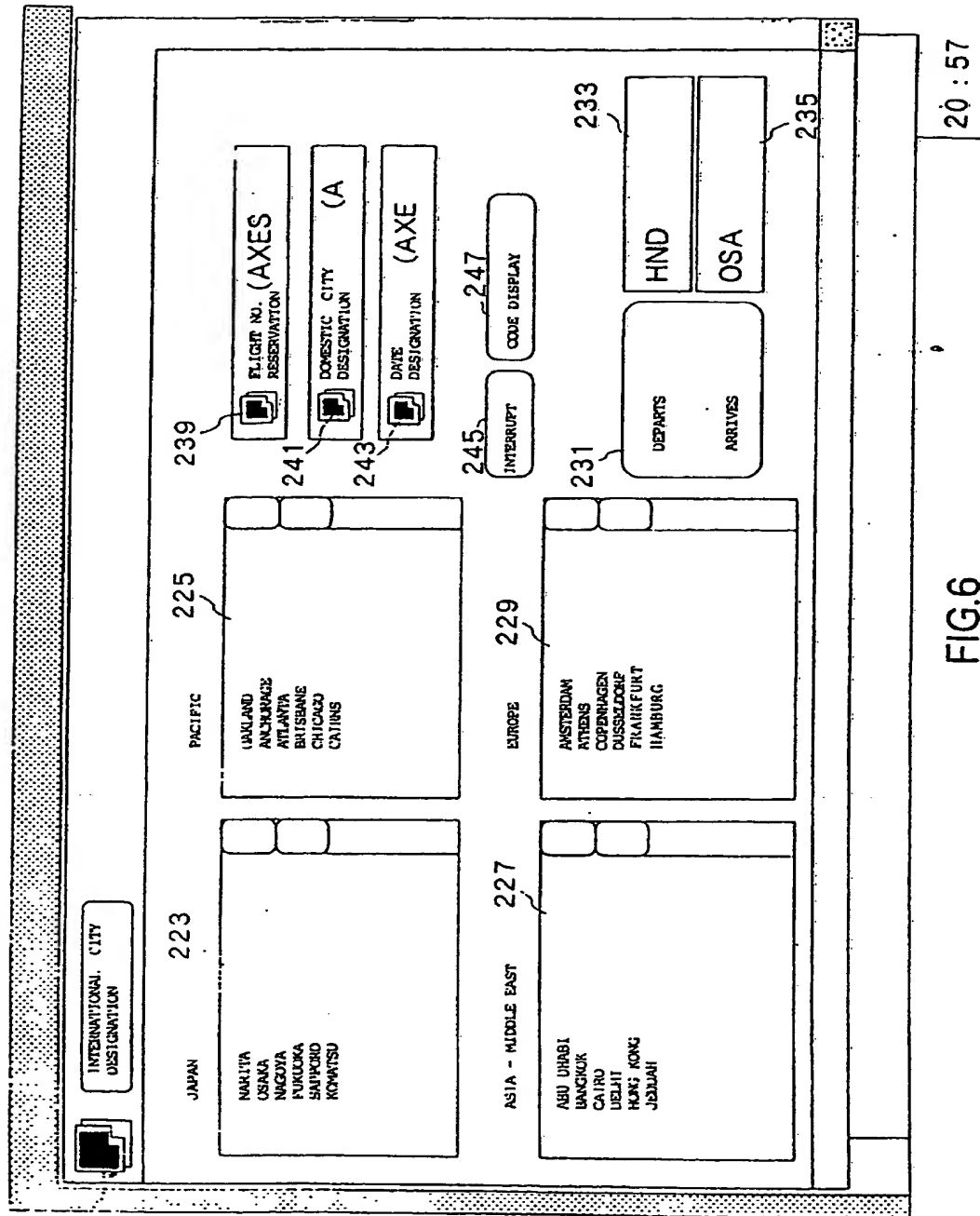


FIG. 6

20:57

246 263 265 267 269

RESERVATION EDITION

RESERVATION NUMBER NARITA

DATE ISSUED 12 MONTH 27 DATE VALID UNTIL 60

251 253 255 257 259

271

* CLICK HERE TO INSERT AT HEAD

1 AAA/AAA
2 BBB/BBB
3 CCC/CCC
4 DDD/DDD

273

NAME YEAR

281

CONTACT

TY0045 - 555 - 6666

TY003 - 456 - 7053

PSGR

285

APPLICANT

289

275 277 301279 303

287

293

295

21:05

FIG.7

305

PREVIOUS SENT DESTINATION

PASSENGERS 311

1	INADA/TAKAYA	38	MALE
2	INADA/TAEKO	35	FEMALE
3	INADA/MIMI	4	FEMALE

SEATING CHART 307

INTERUPT 309

FLIGHT 313

315

FLIGHT	DATE	FLIGHT NAME	CLASS	DEPARTS	ARRIVES	AIRCRAFT
1	11/11	JAL 1072	F	1900	0615	747
2	11/21	JAL 1071	F	1000	1500	747

PREVIOUS SEAT	DATE	FLIGHT NAME	PASSENGER/SEAT
1	11/11	JAL 1072	1A/1B/2A
2	11/21	JAL 1071	1A/1B/2A

FIG.8

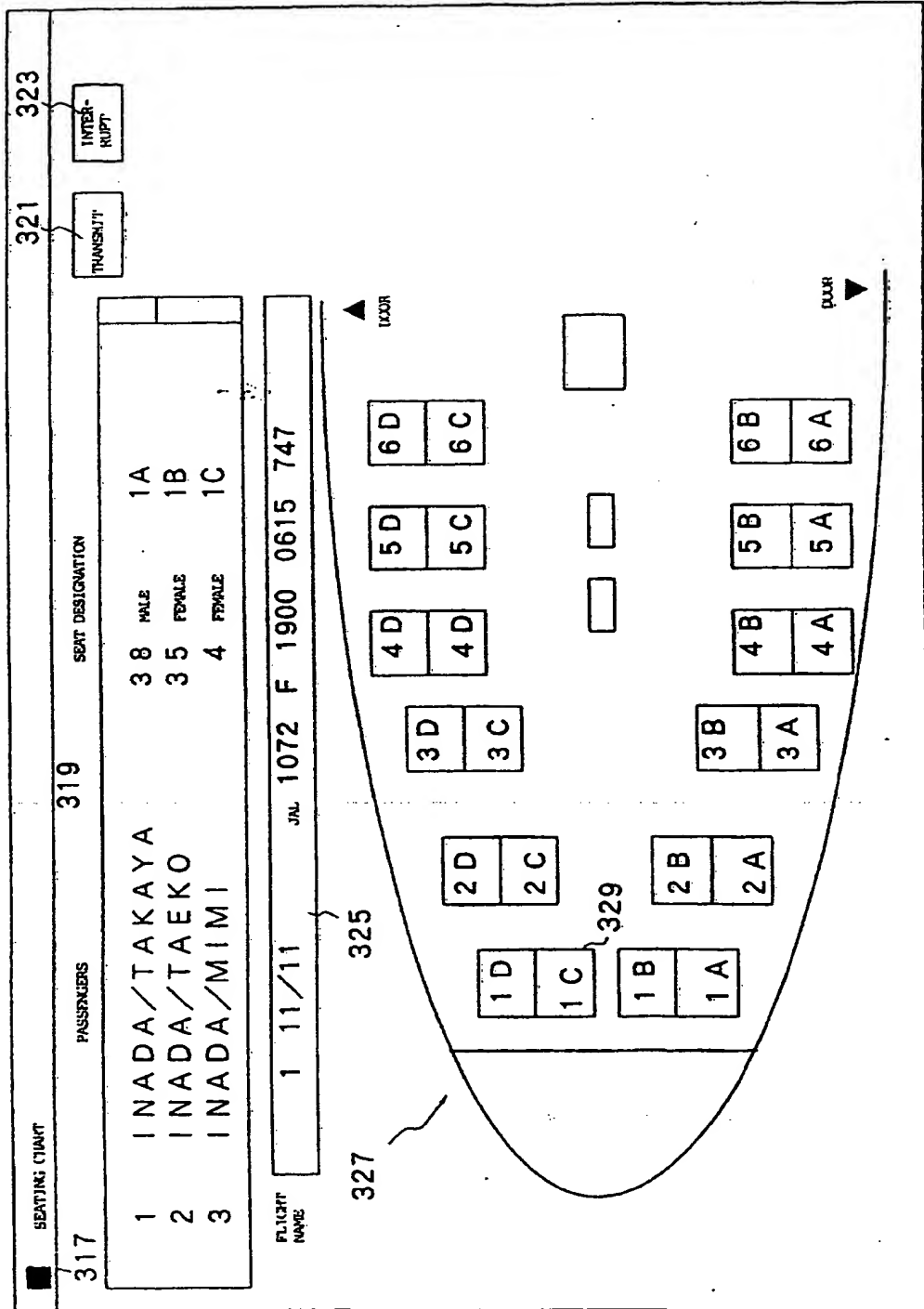


FIG.9

311

PASSENGER INFORMATION

RESERVATION NUMBER

DATE

FLIGHT NAME

NAME

FLIGHT NAME

DATE

NO

NAME

RESERVATION NO. DESIGNATION

DATE

NAME

FLIGHT NAME

DATE

NO

DATE DESIGNATION

TRANSMIT

RE-DISPLAY

INTERUPT

NEXT PAGE

311

333

334

335

337

339

341

343

345

347

349

351

20:40

FIG.10

FIG. 11

413

TOUR -- 415 417 419 433 435 441 443 445 447 449

DEPARTURE DATE ☐ 11/12/81

DURATION ☐ 6 DAYS

SALES PRICE ☐ 250,000V

DEPARTURE CITY ☐ TOKYO

CITY FOR STAY ☐ HONOLULU

CITY FOR STAY ☐ 439

INTER-RUPT ☐ 451

DATE DESIGNATION ☐ 453

INTERNATIONAL CITY ☐ 455

ROOM TYPE ☐ SGL ☐ TWN ☐ TRL ☐ OTHER

NO. OF PERSONS ☐ 4

ROOM ☐ 457

FLT ☐ A ☐ B ☐ C ☐ OTHER

SALE PRICE ☐ 467

ADDITIONAL INFORMATION ☐ 471

473

TOUR CODE	TOUR NAME	DAYS	HOTEL	ROOM	MEALS	FLT	PATTERN	SALE PRICE
JA1306A	WV - COURSE	6	PRINCESS KAHULANUI	OCEAN VIEW		BC		222,000B
JA1306B	WV - COURSE	6	PRINCESS KAHULANUI	OCEAN VIEW	W/MEALS	BC		249,000B
JA1306C	WV - COURSE	6	ROYAL HAWAIIAN	DELUXE		BC		258,000B
JA1306D	WV - COURSE	6	ROYAL HAWAIIAN	DELUXE	W/MEALS	BC		285,000B
JA1306E	WV - COURSE	6	HAWAIIAN REGENT	OCEAN VIEW		BC		242,000B
JA1306F	WV - COURSE	6	HAWAIIAN REGENT	OCEAN VIEW	W/MEALS	BC		269,000B
JA1306G	WV - COURSE	6	MOANA FRIDAR	OCEAN VIEW		BC		258,000B
JA1306H	WV - COURSE	6	MOANA FRIDAR	OCEAN VIEW	W/MEALS	BC		285,000B
JA1306I	WV - COURSE	6	HILTON RAINBOW TOWER			BC		258,000B
JA1306J	WV - COURSE	6	HILTON RAINBOW TOWER		W/MEALS	BC		285,000B

475

FIG.12

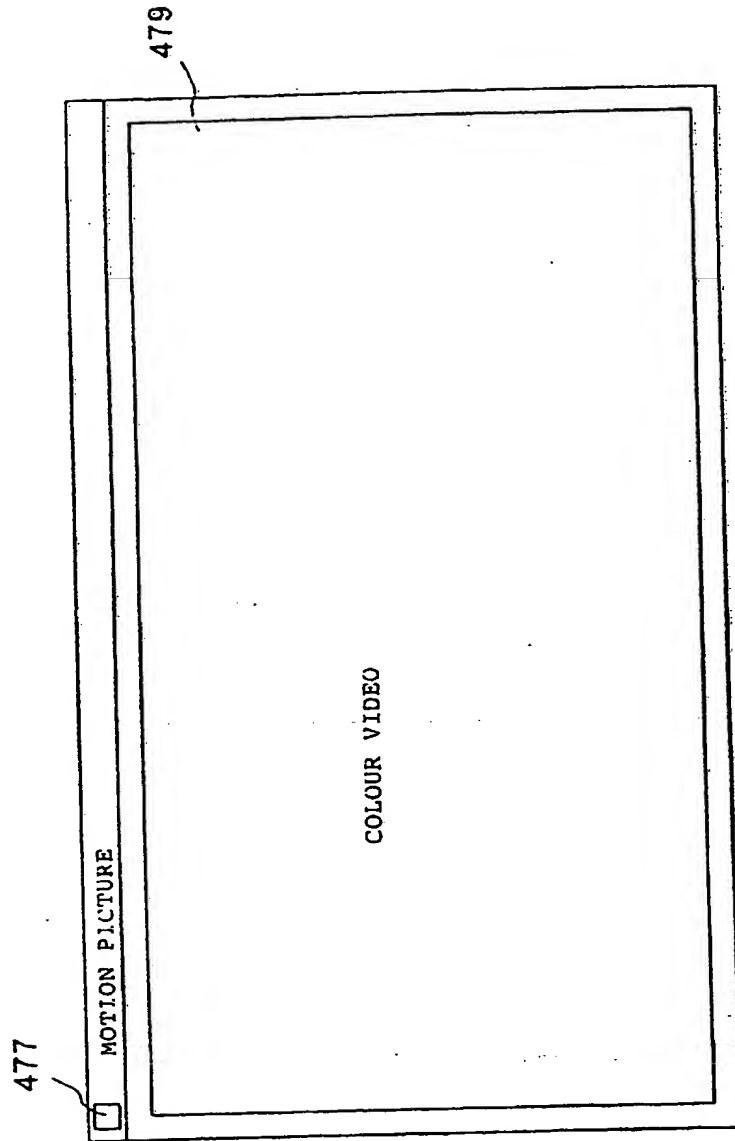


FIG.13

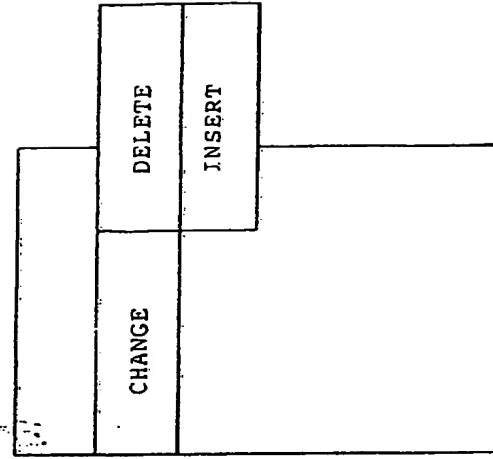


FIG. 14C

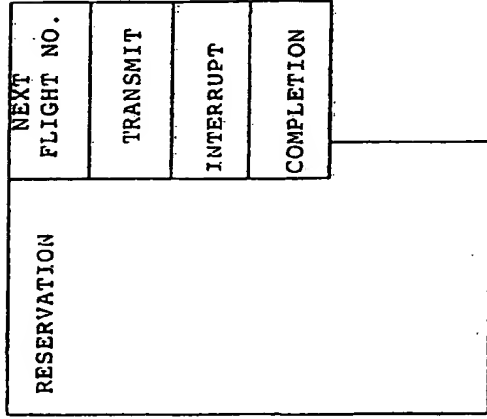


FIG. 14B

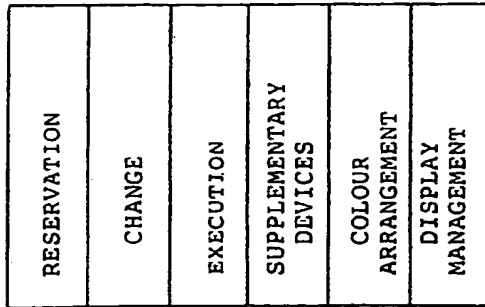


FIG. 14A

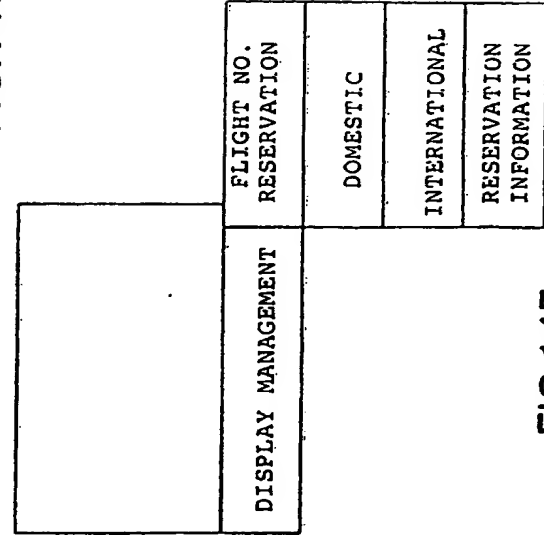


FIG. 14E

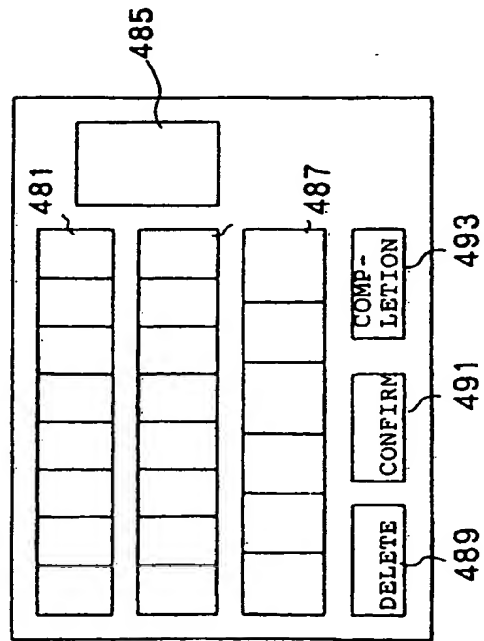
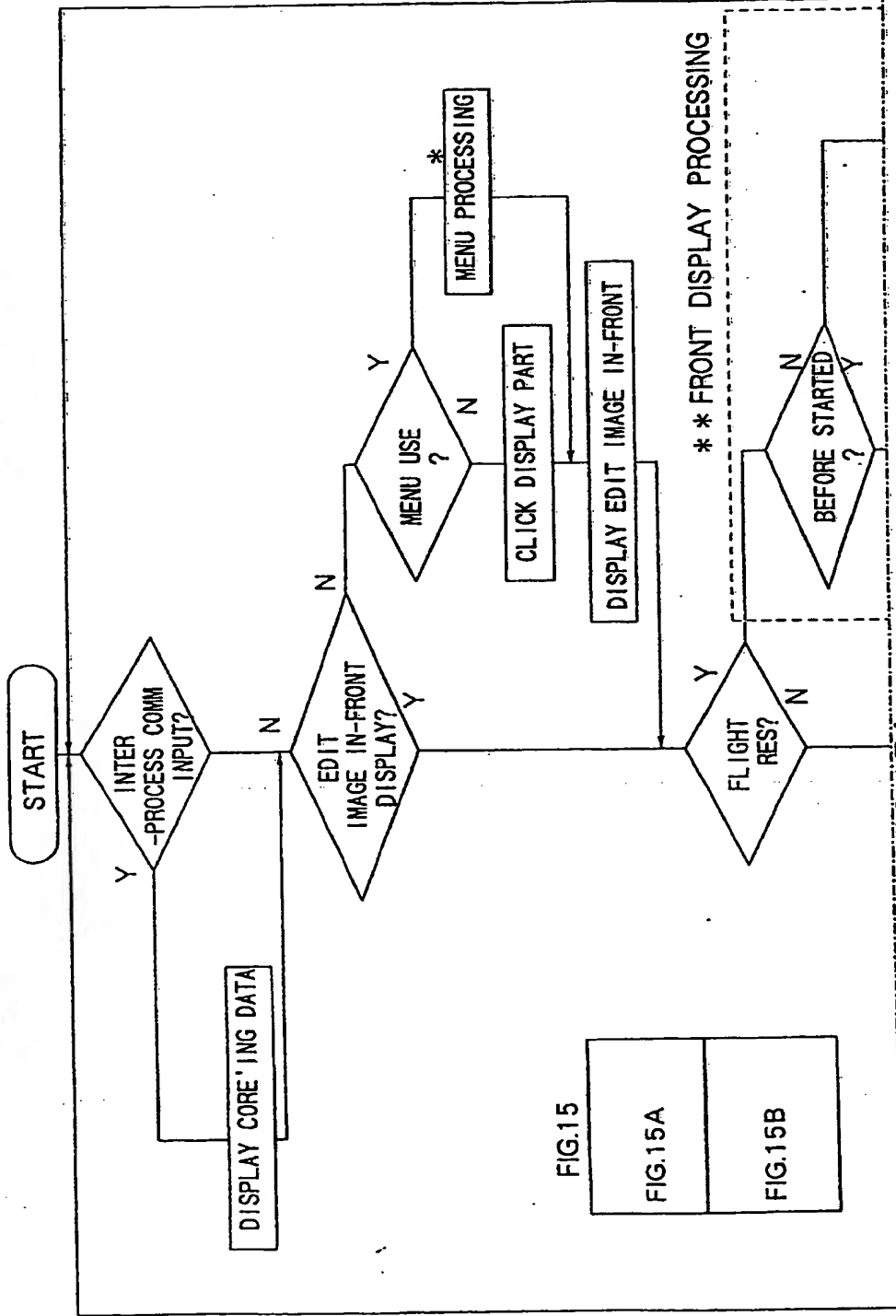


FIG. 14D

FUNCTION SELECTING METHOD ON RESERVE EDIT IMAGE



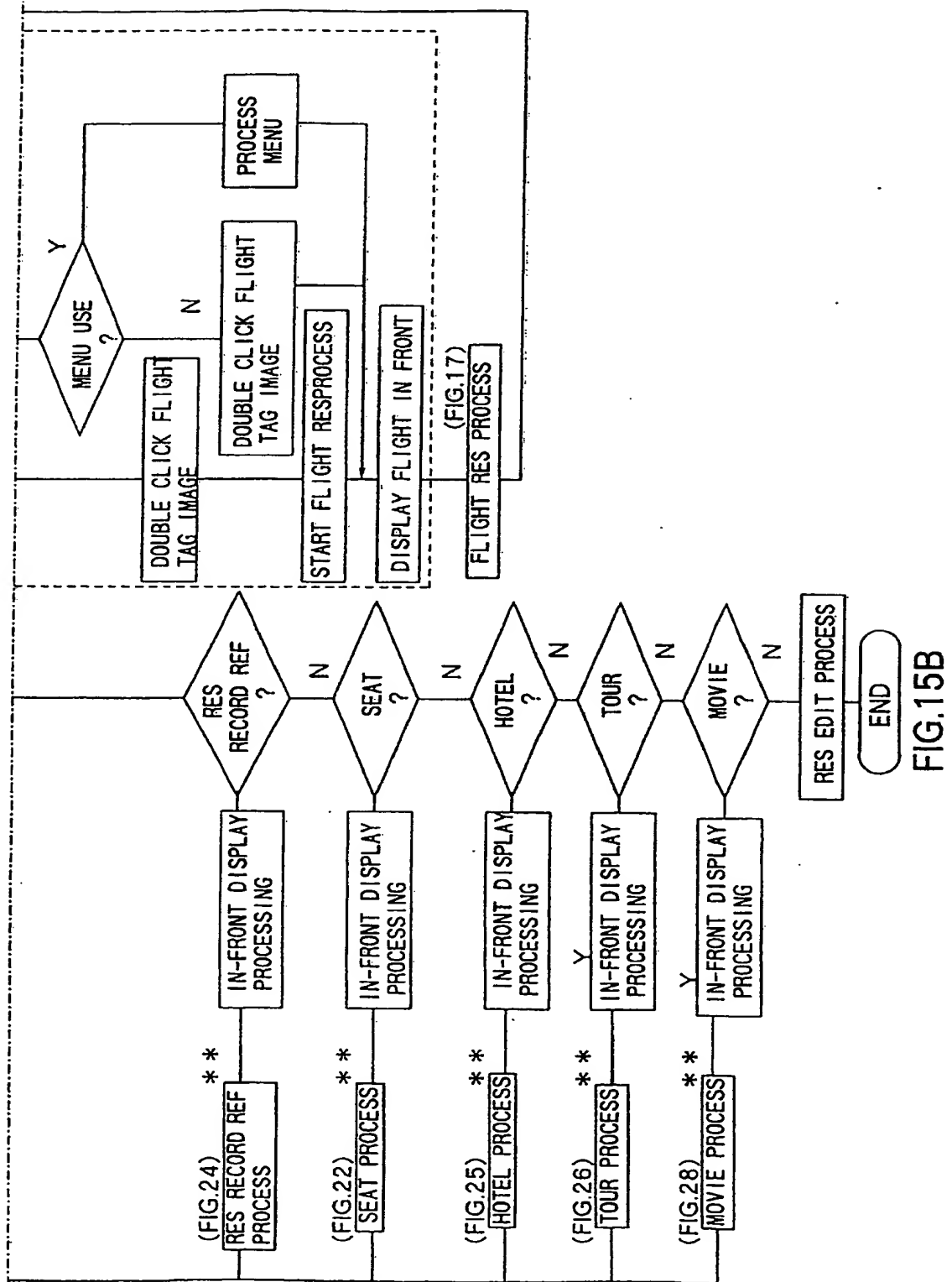


FIG. 15B

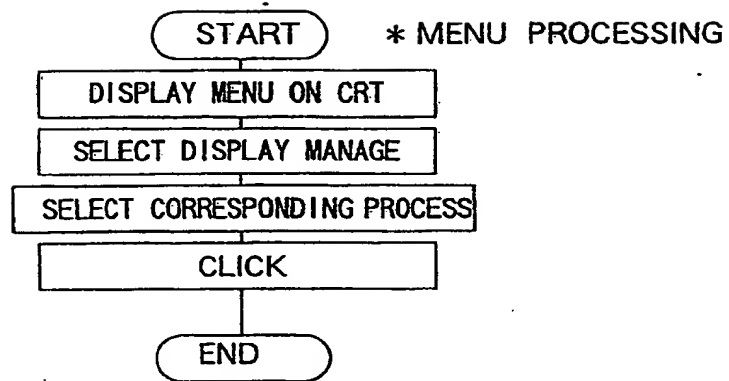


FIG.16

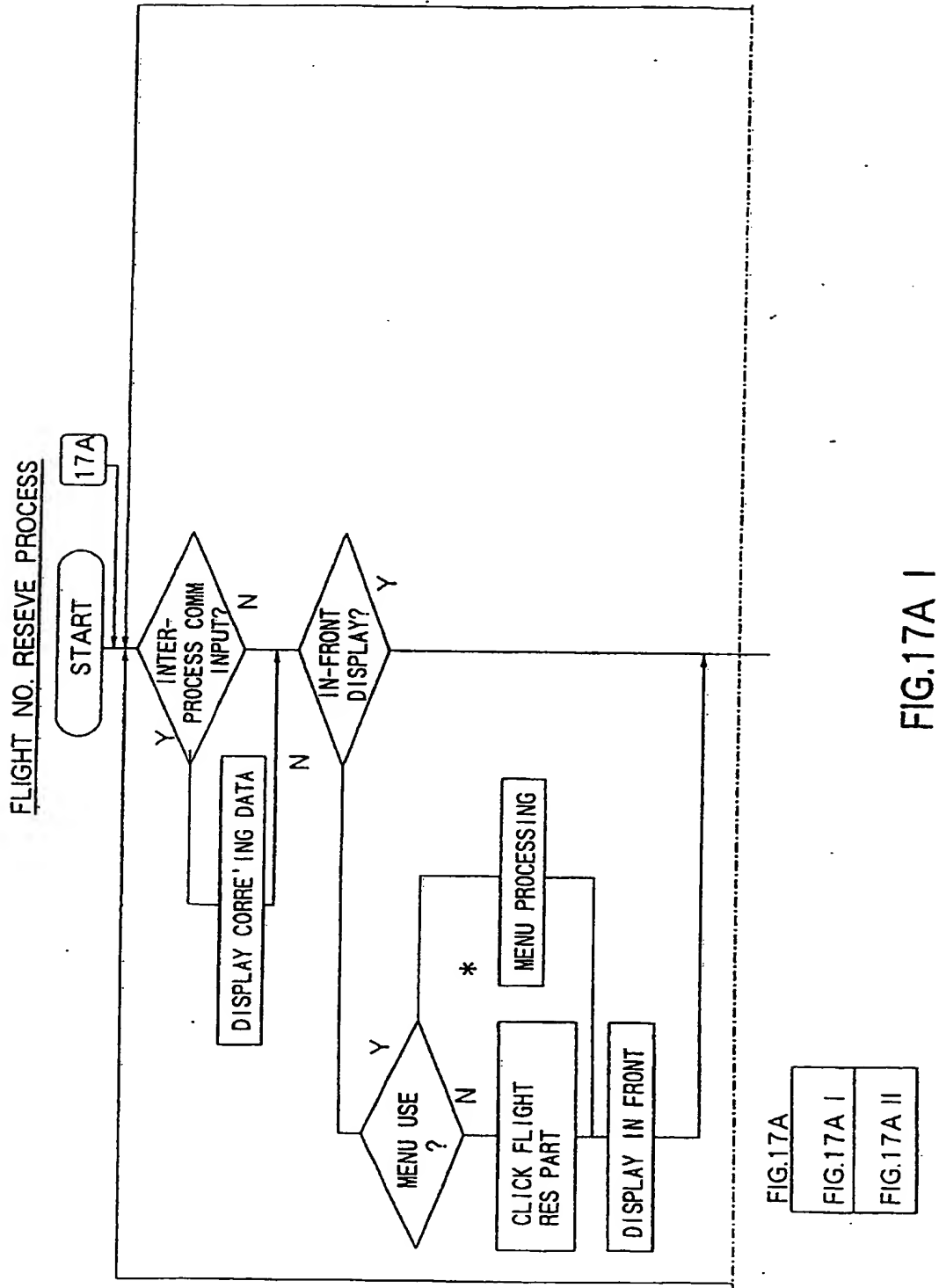


FIG.17A I

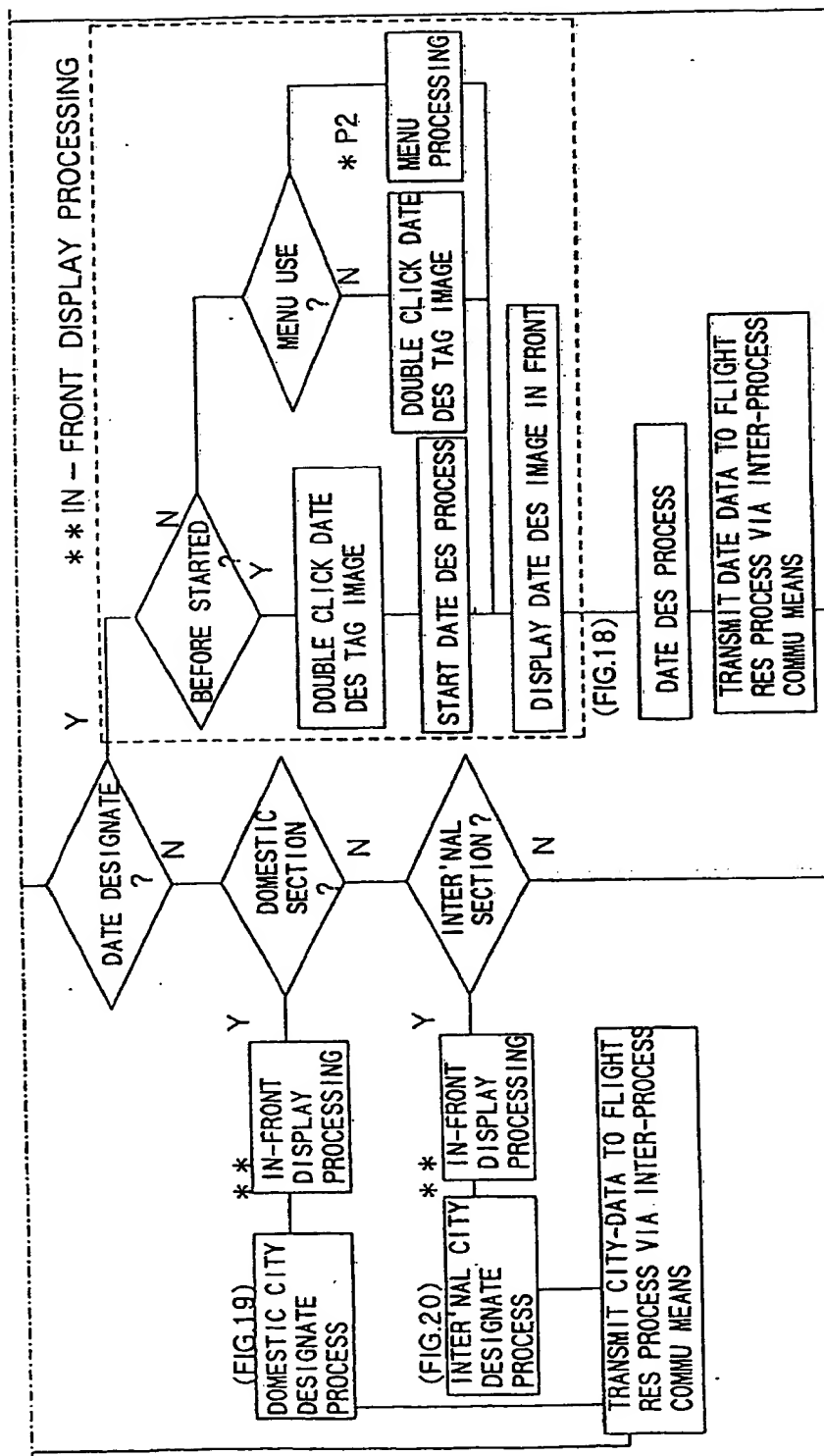


FIG.17A II

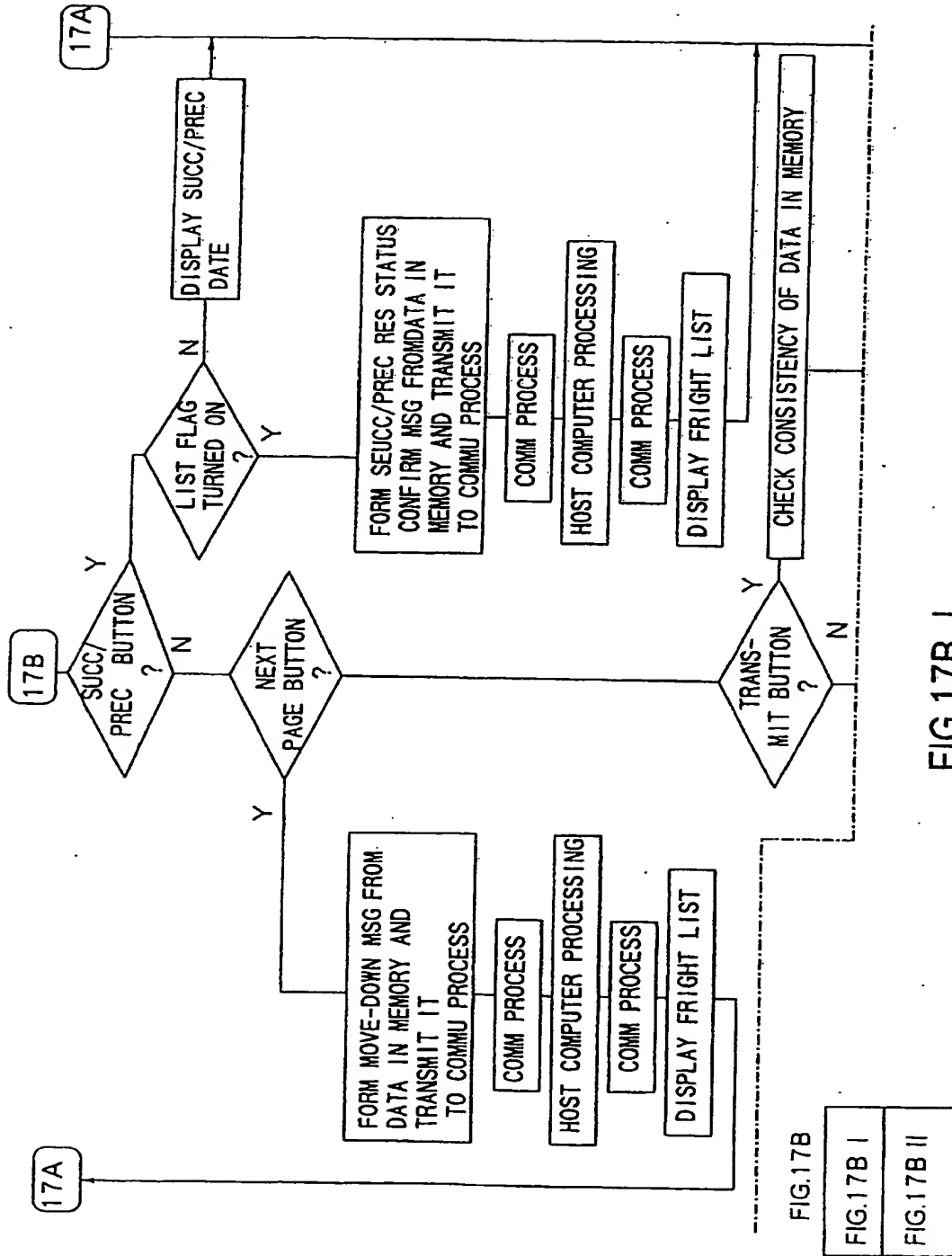


FIG. 17B I

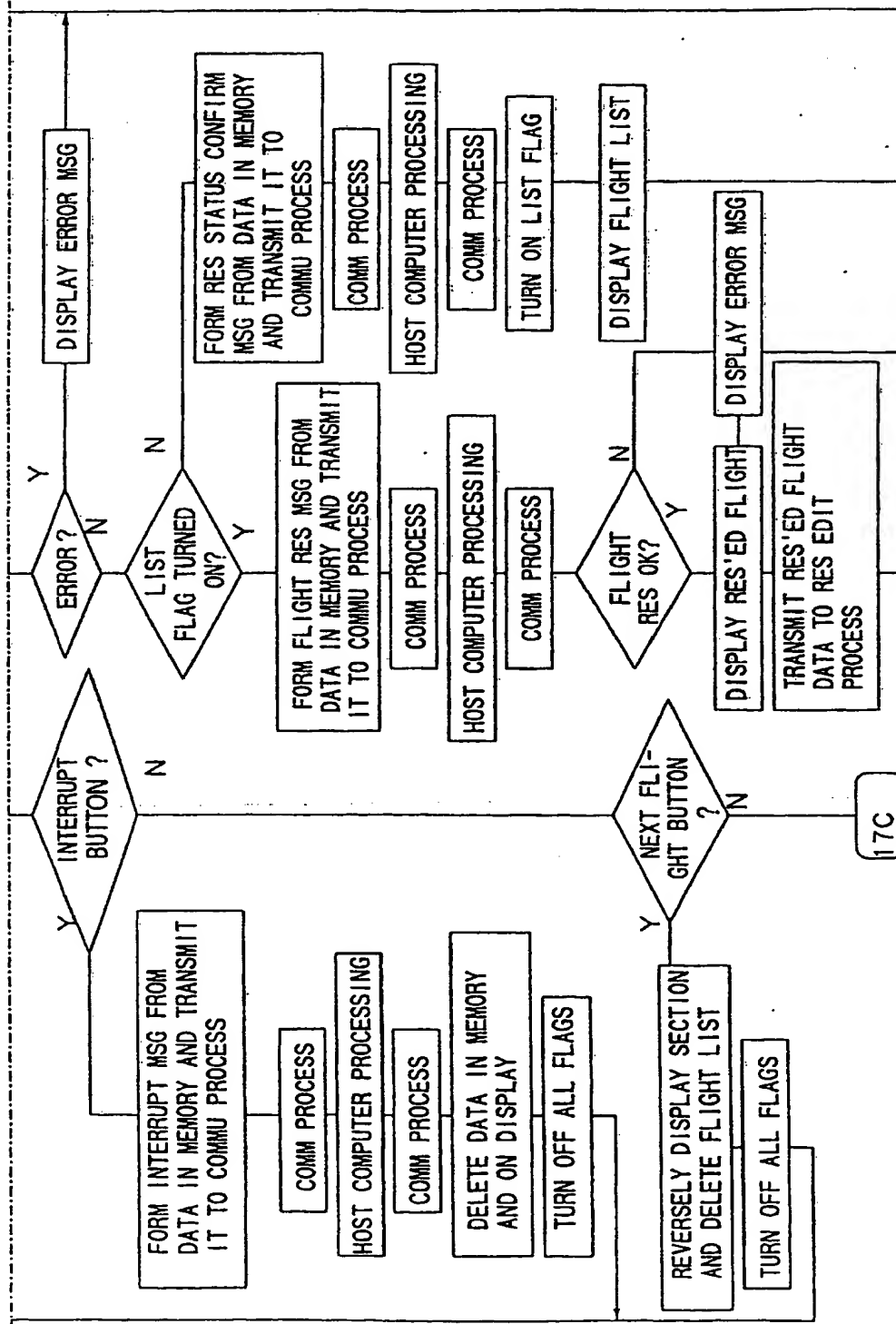
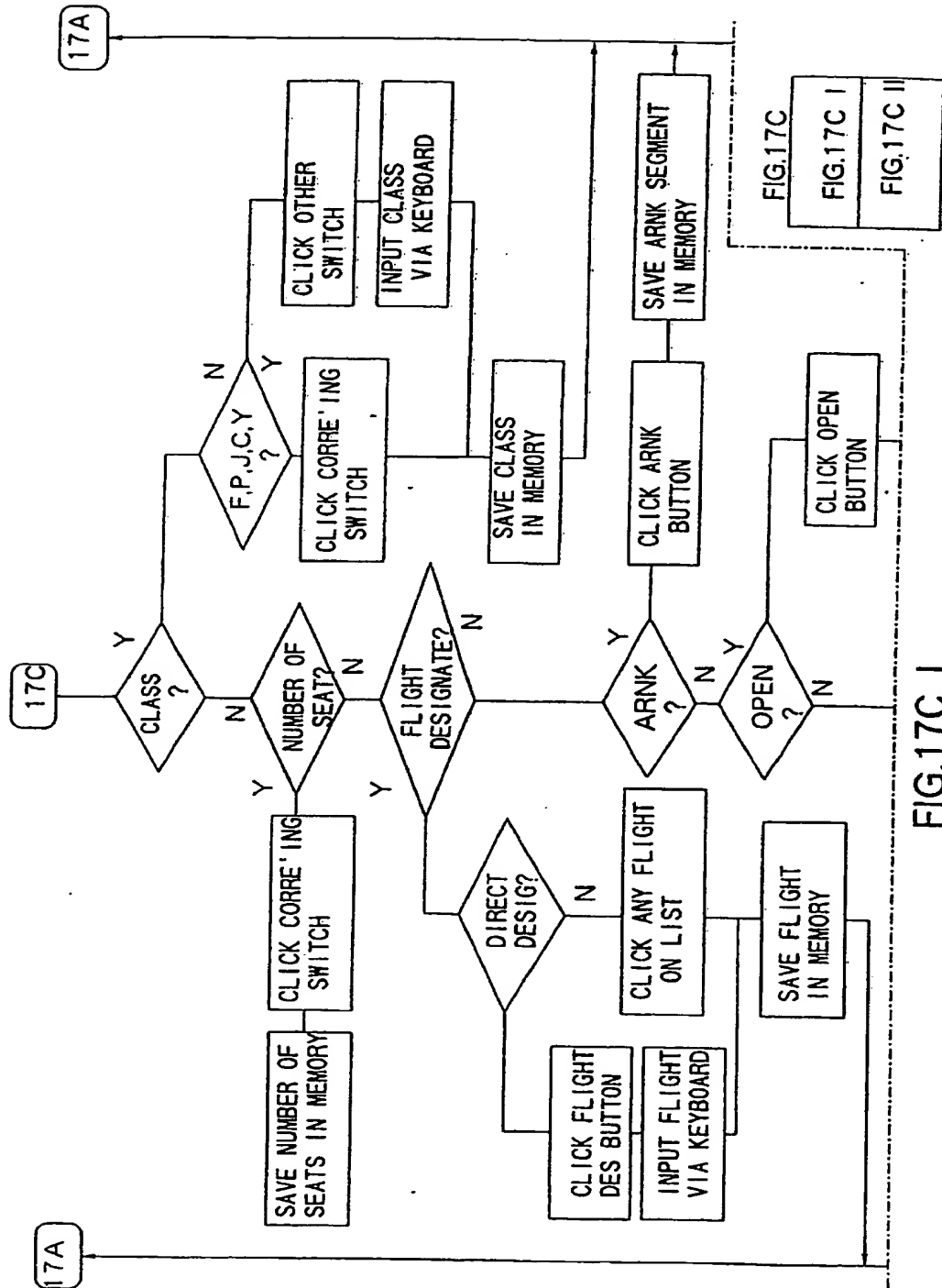


FIG.17B II



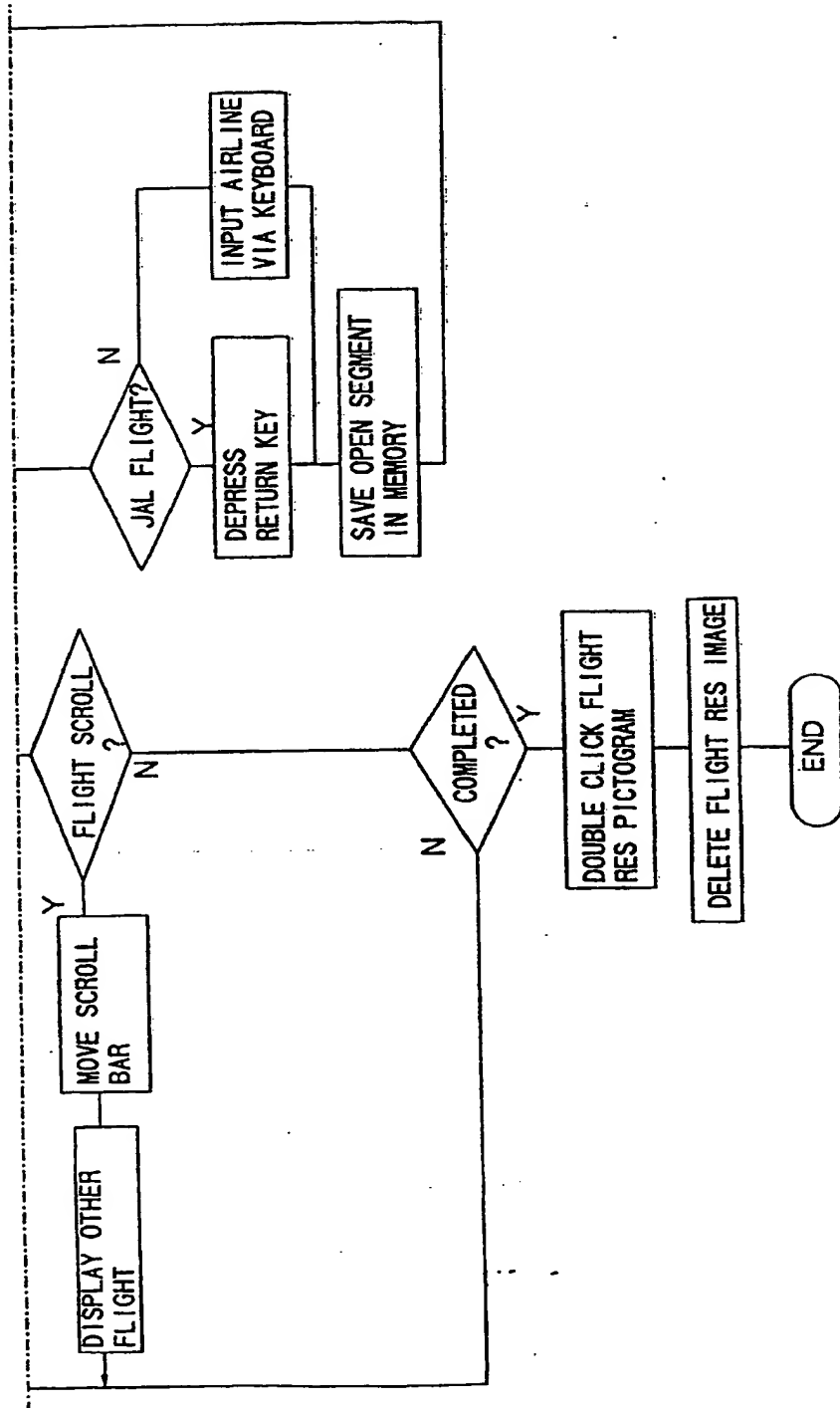
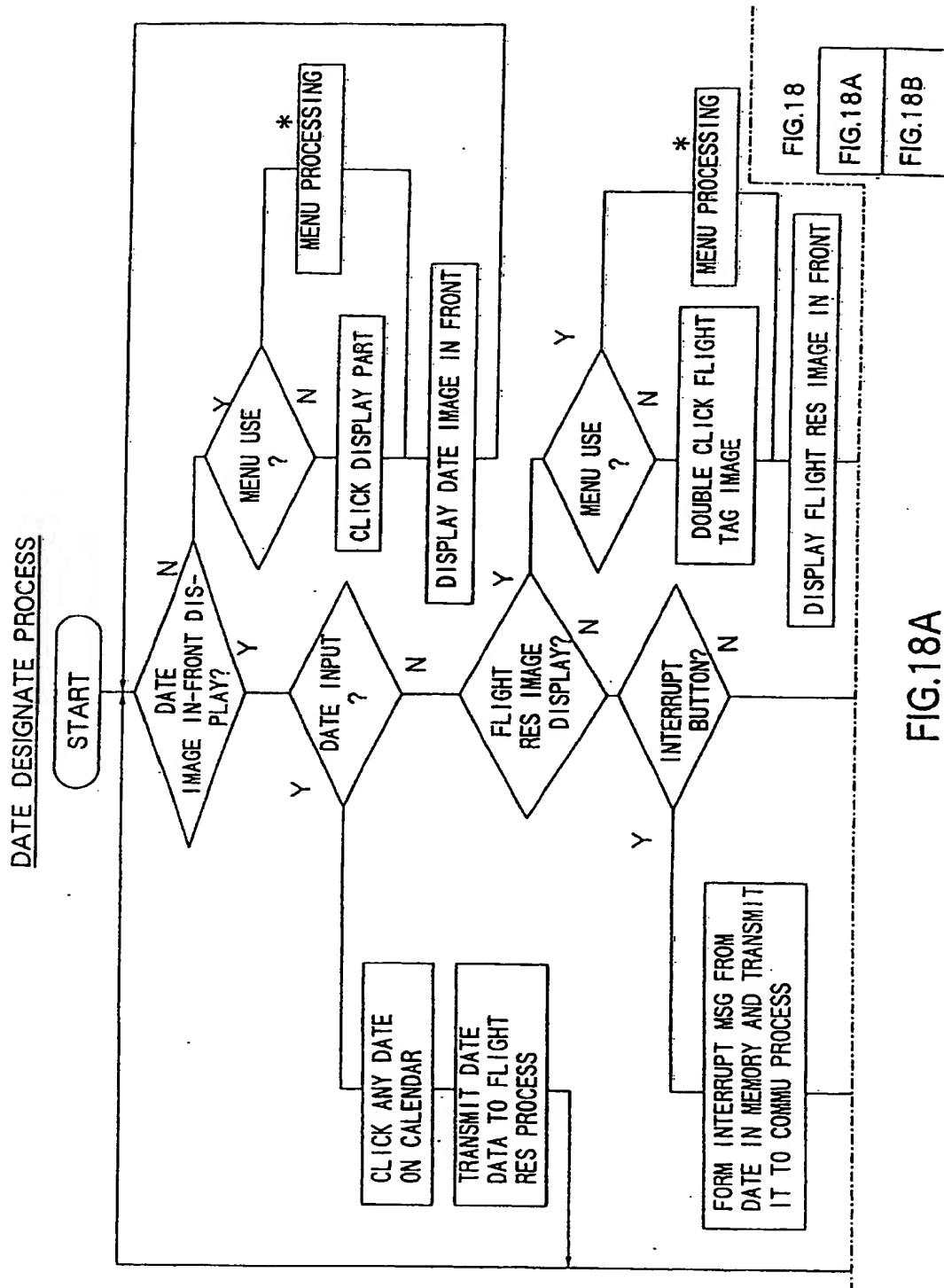


FIG.17C II



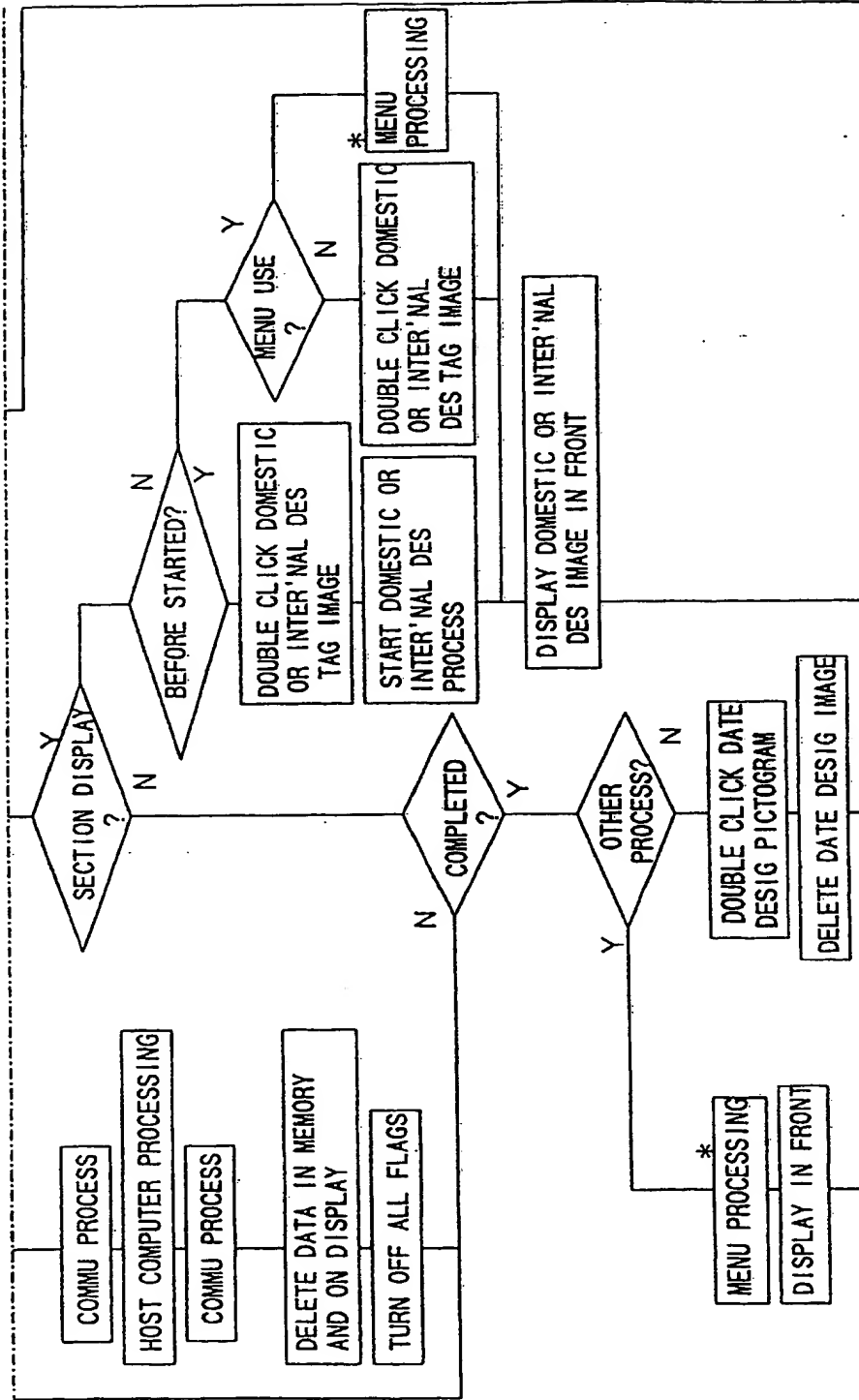


FIG.18B

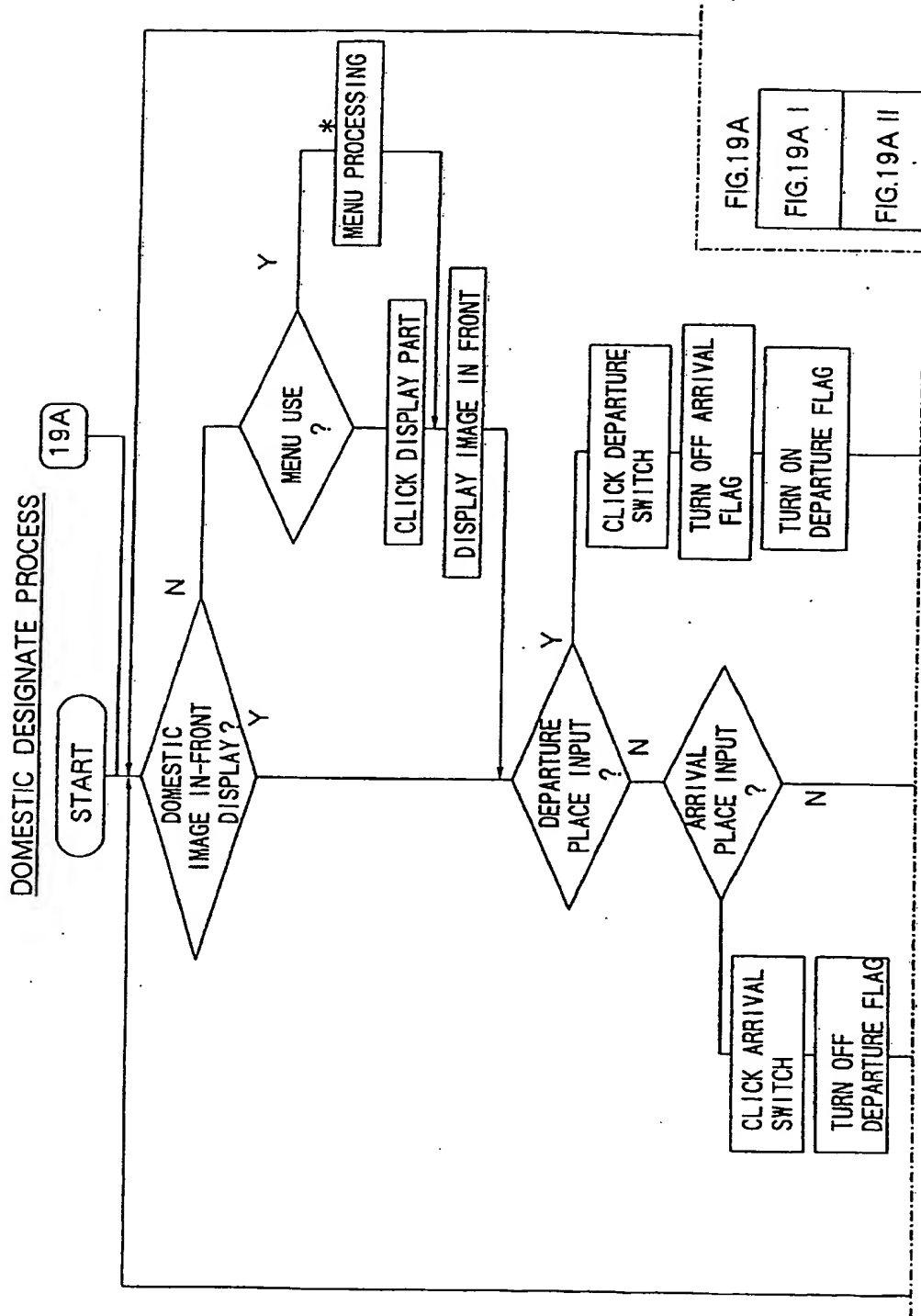
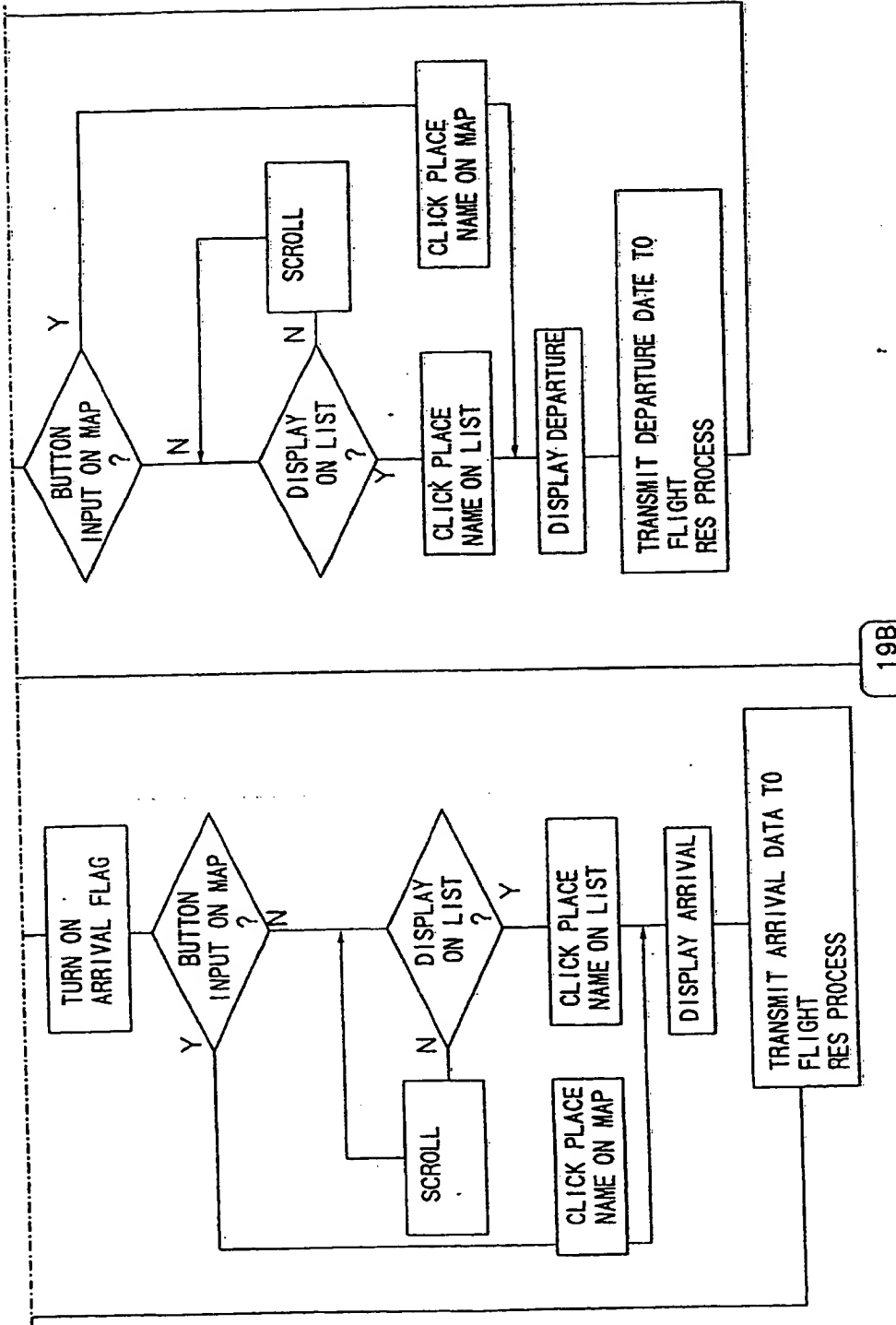
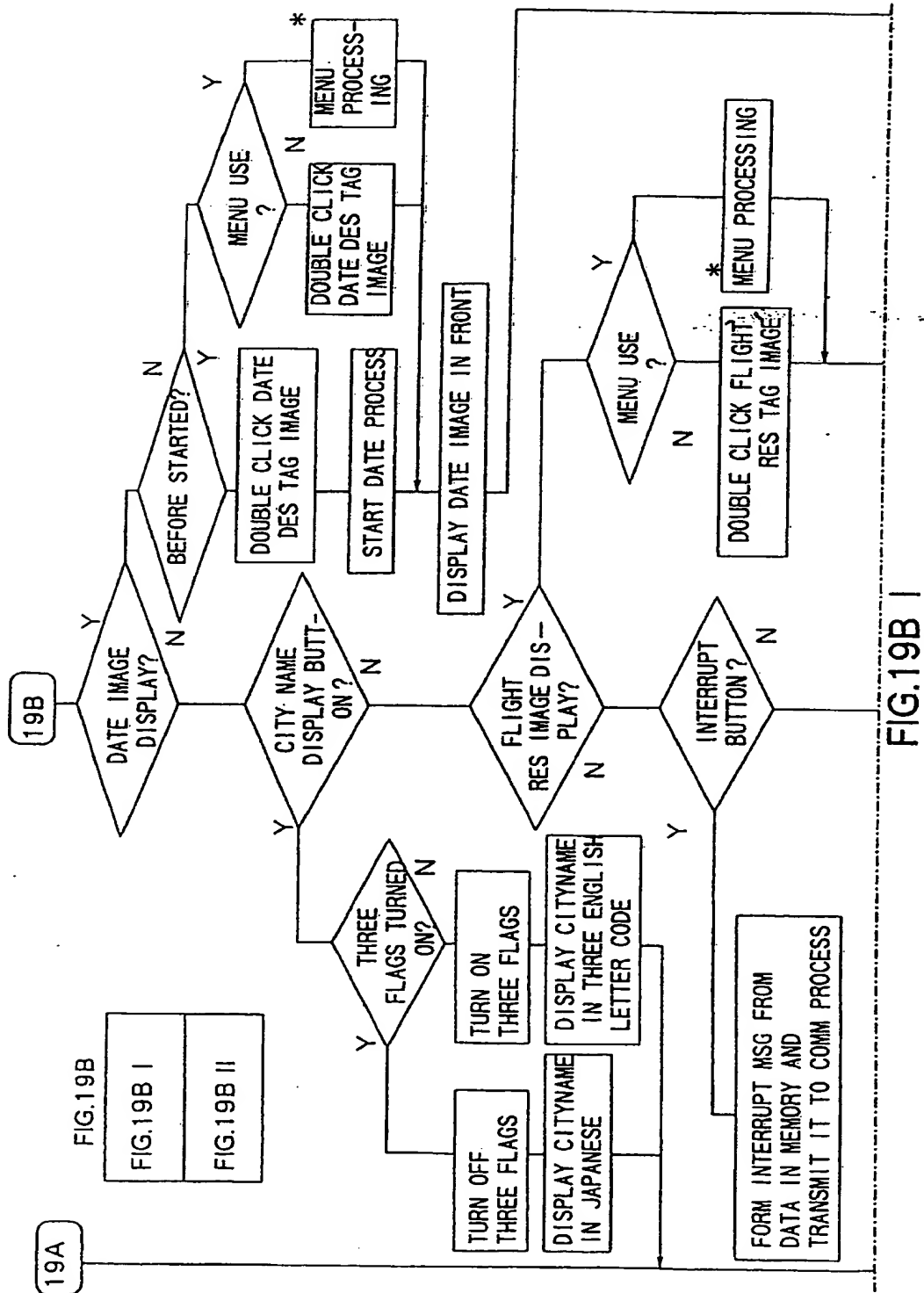


FIG.19A I



19B

FIG.19A II



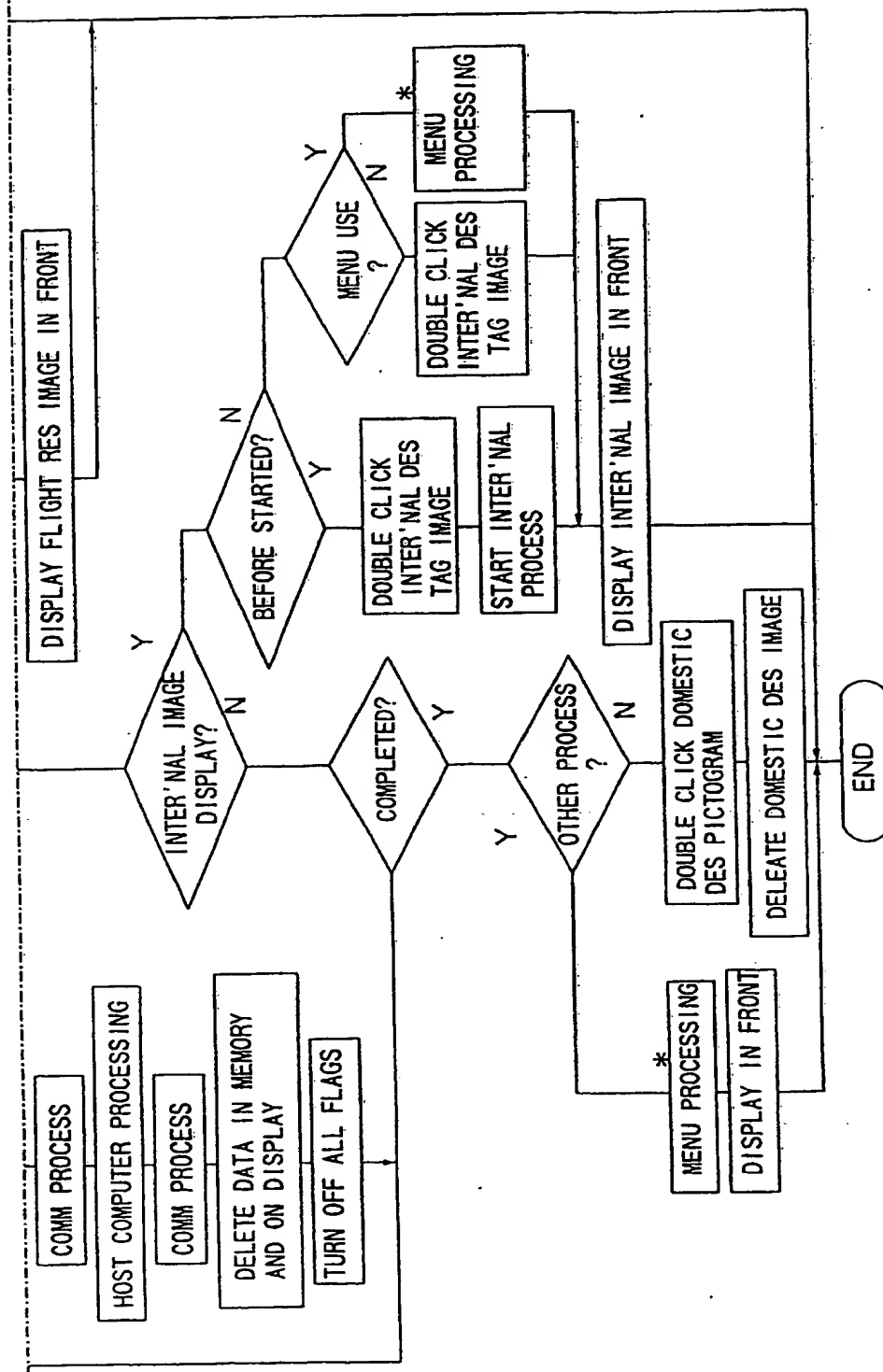


FIG.19 B II

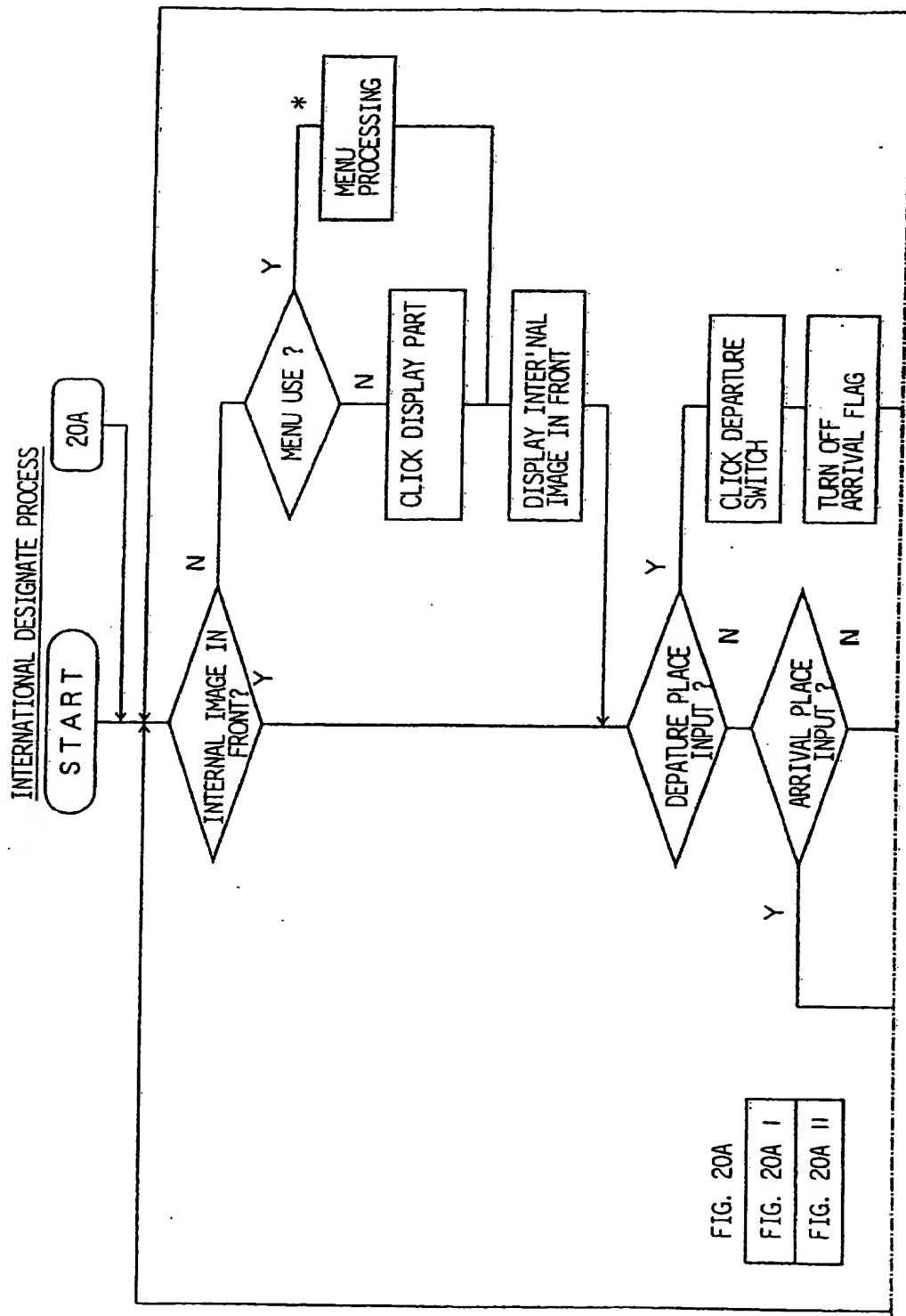


FIG. 20A I

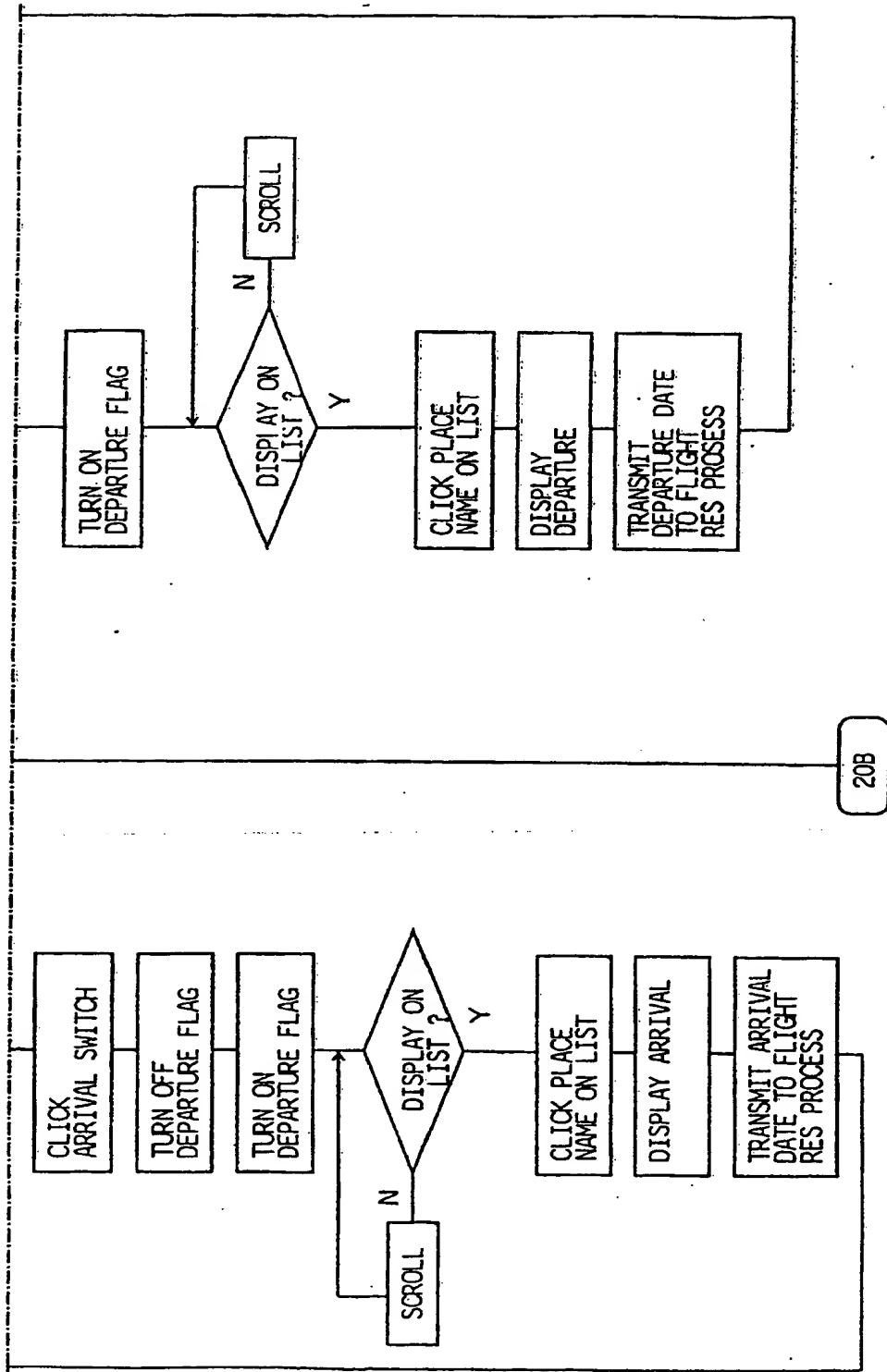
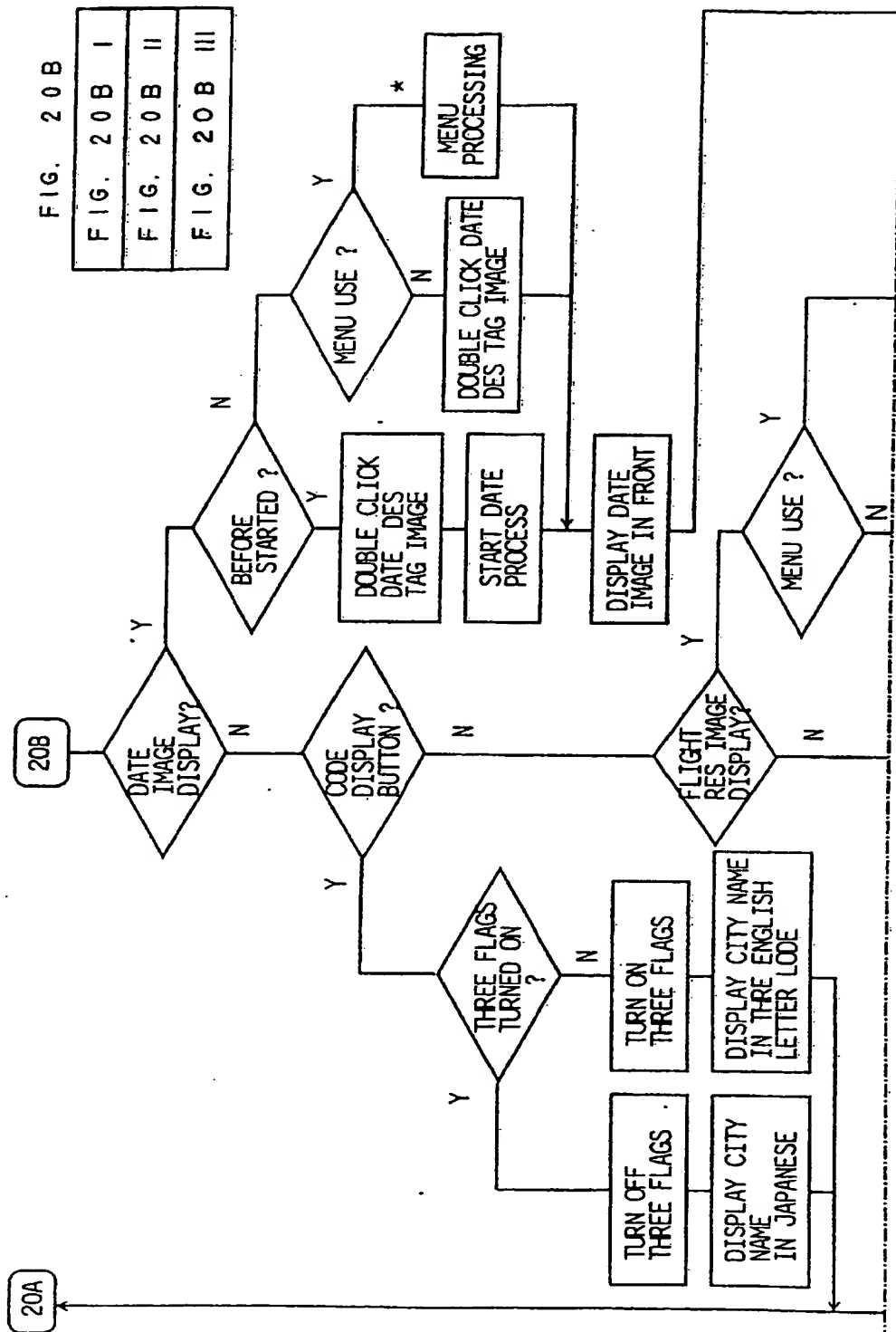


FIG. 20A II



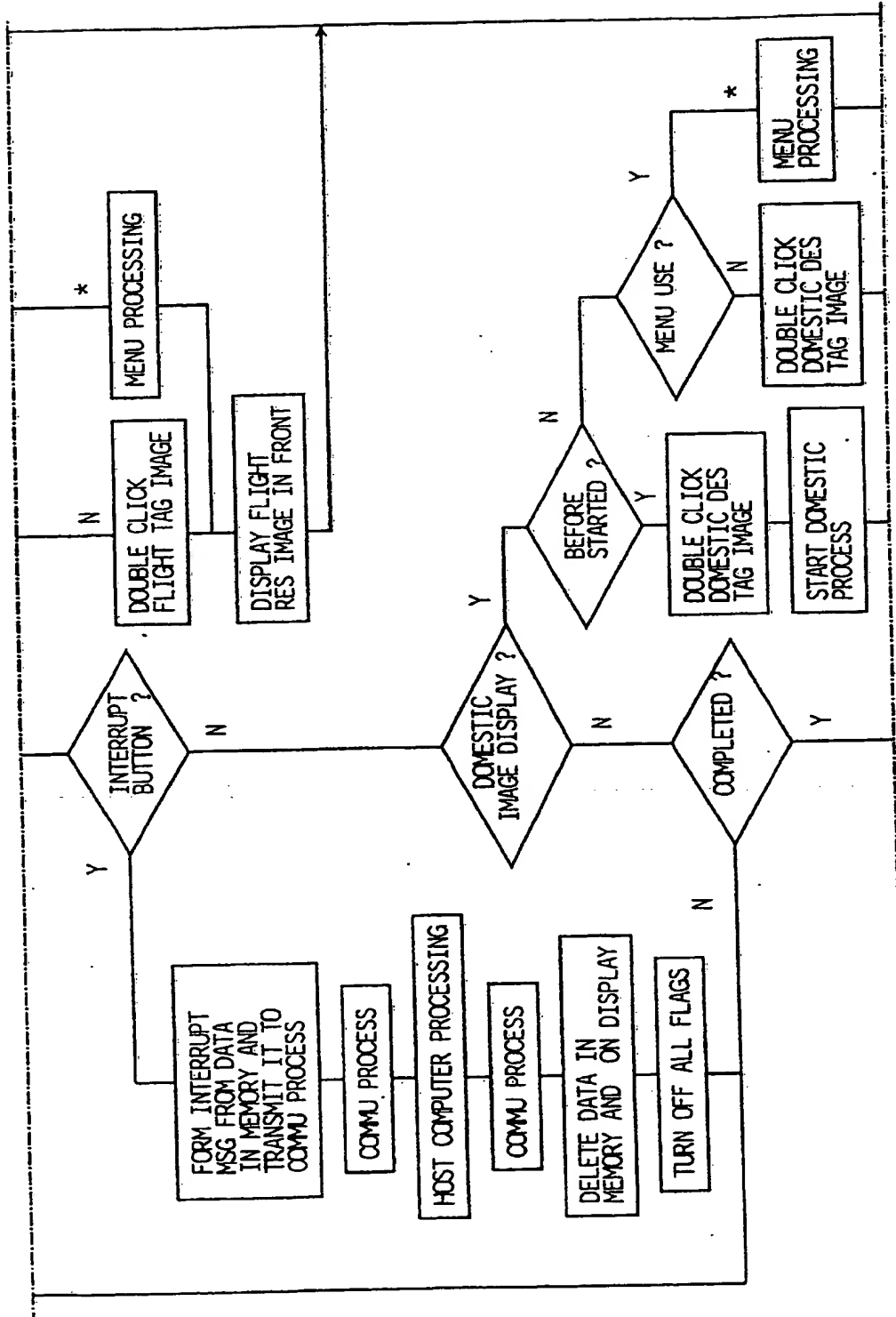


FIG. 20B II

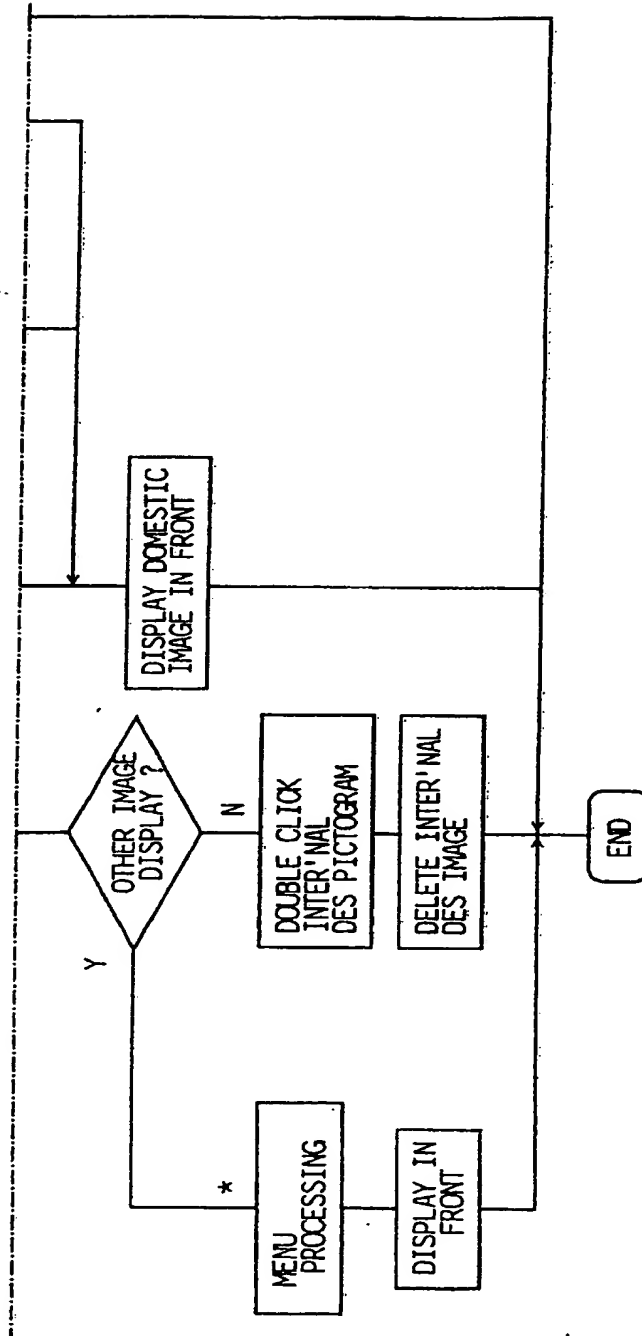
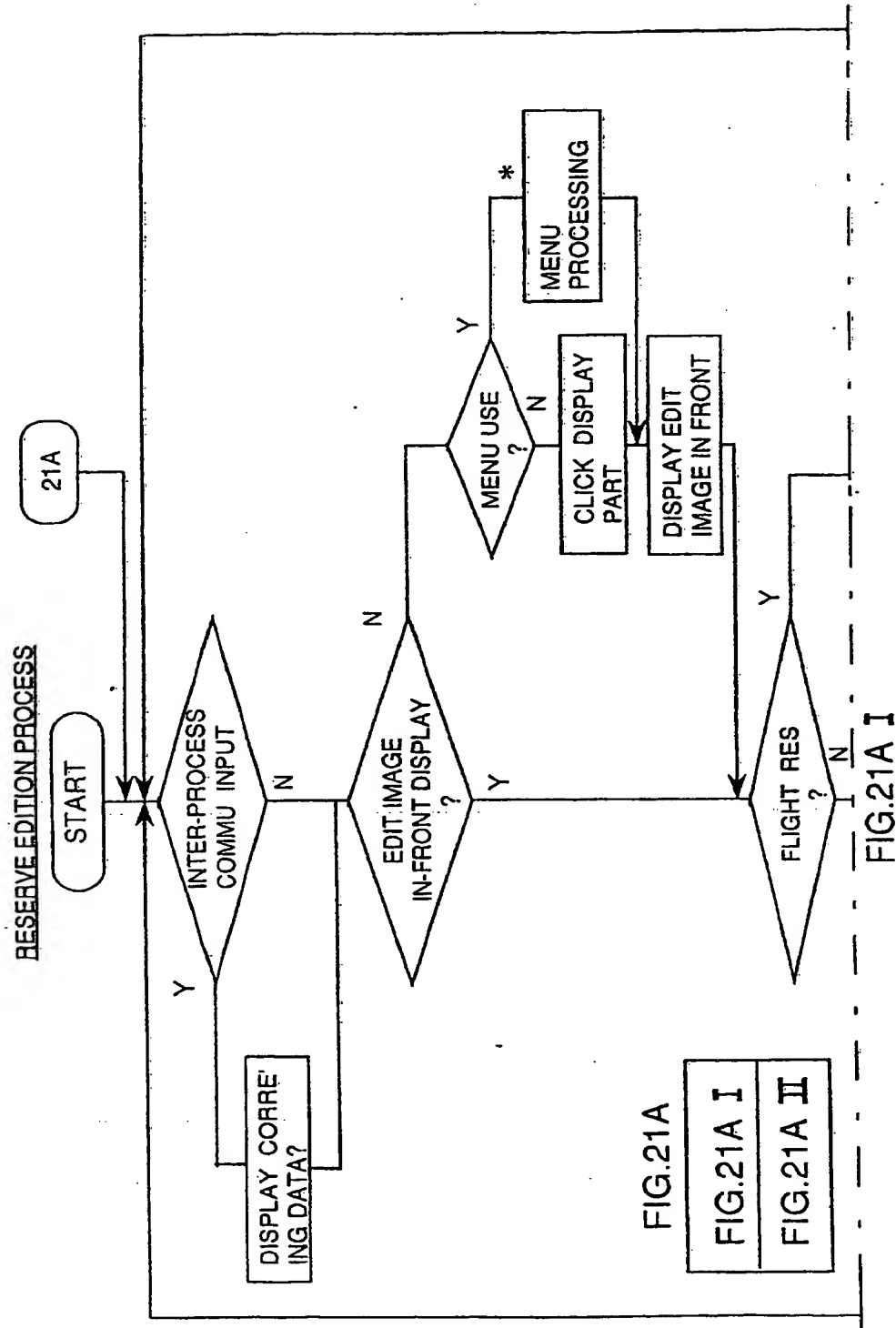


FIG. 20B III



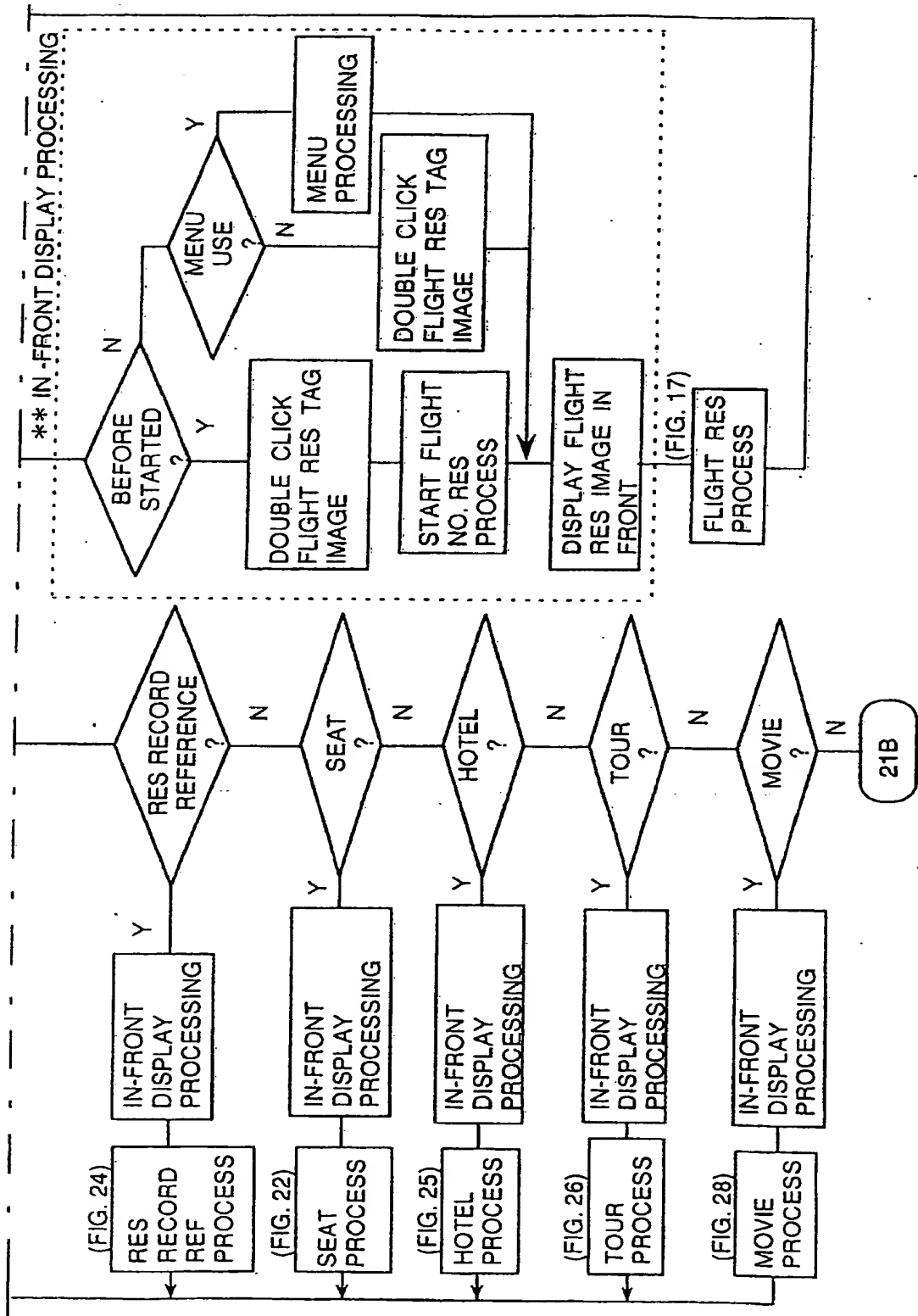
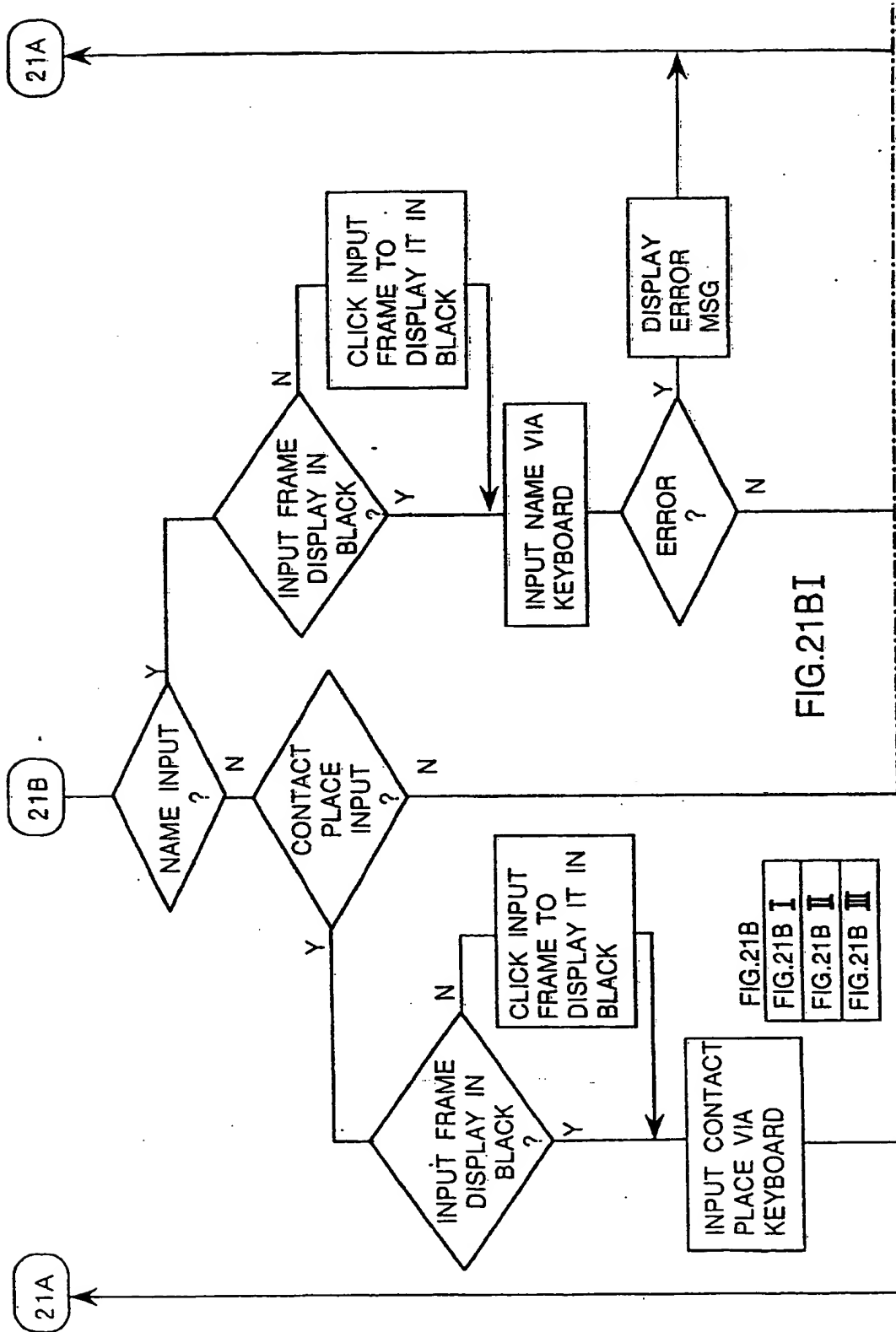
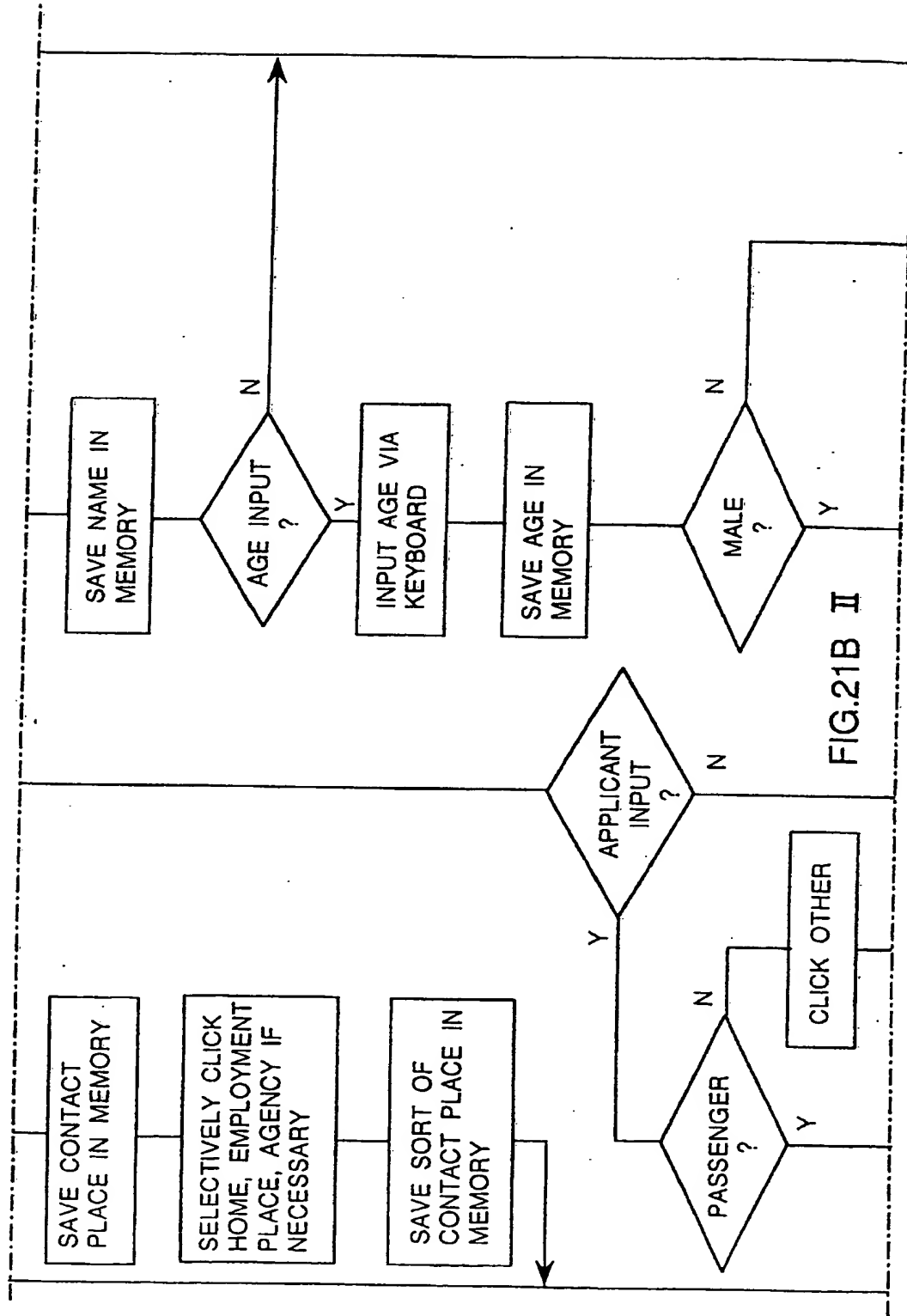


FIG. 21A II





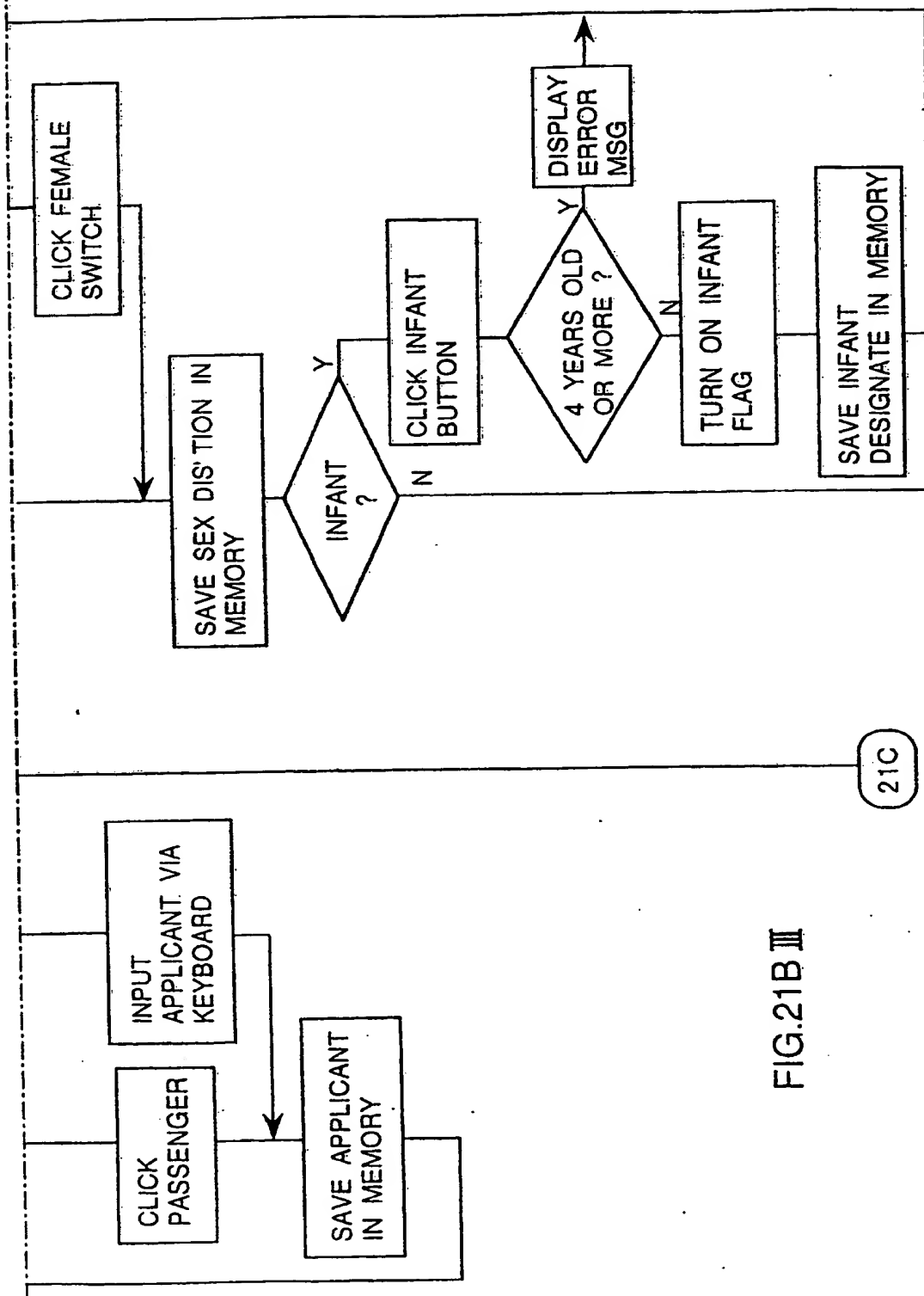
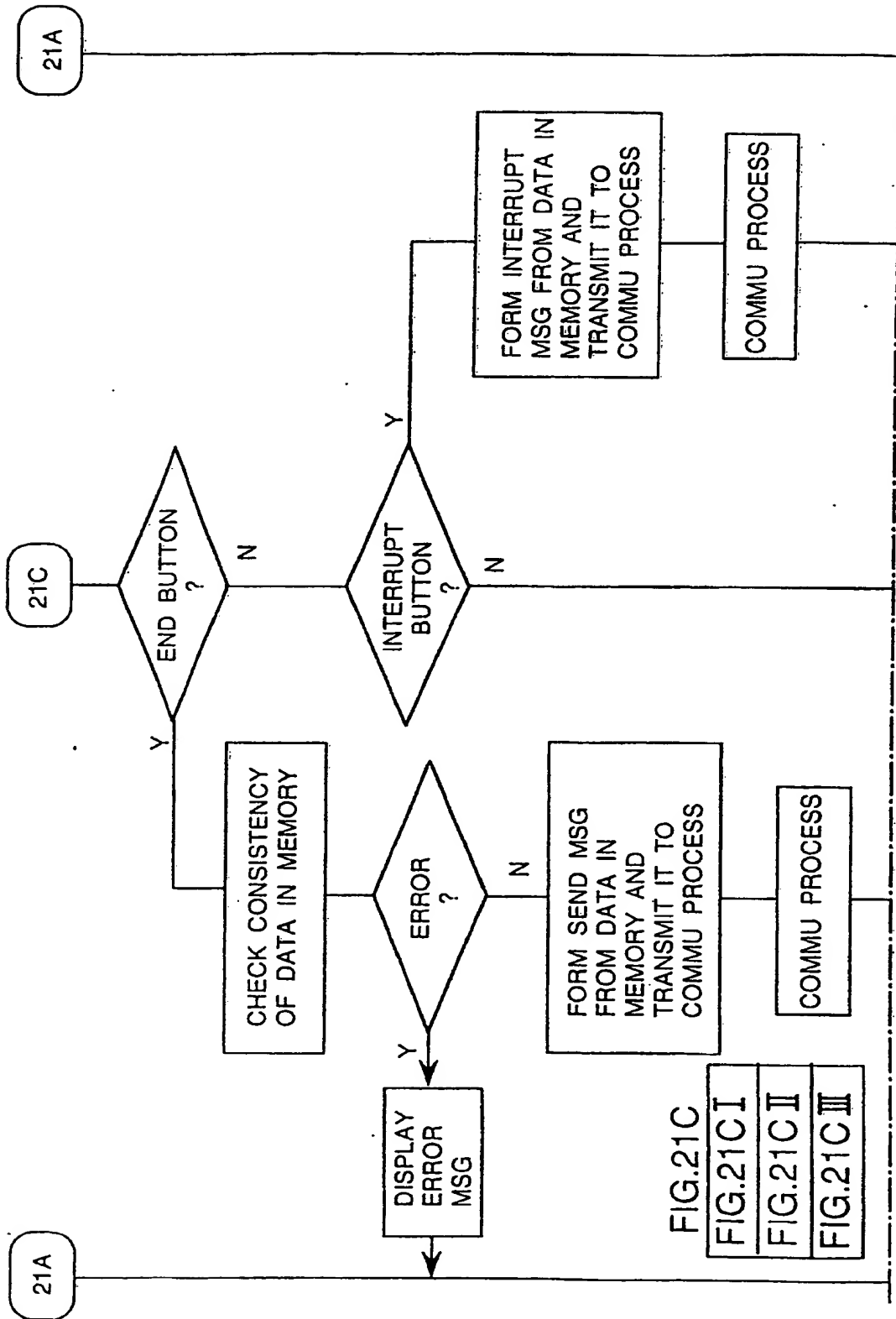


FIG. 21B III



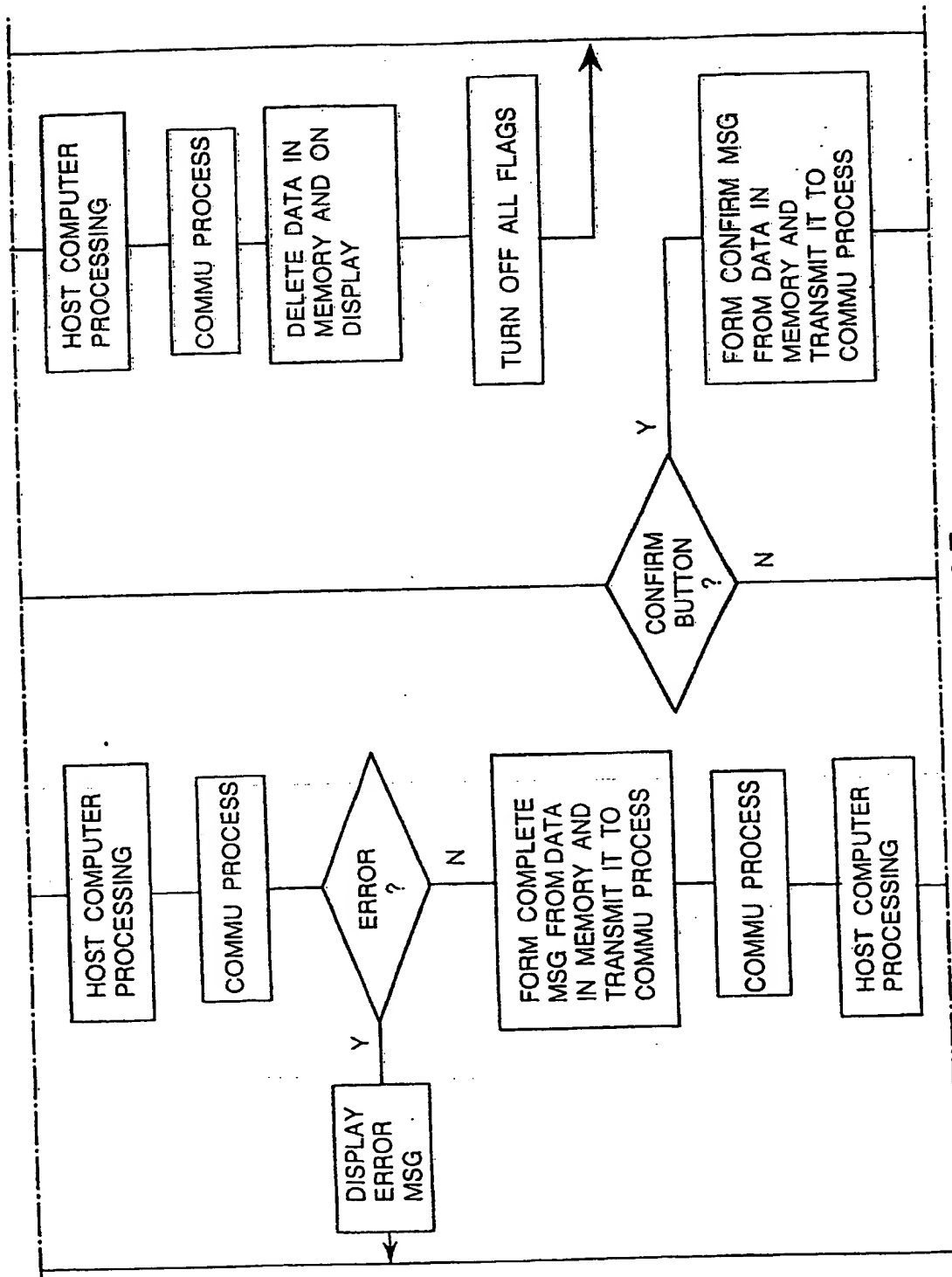


FIG. 21CII

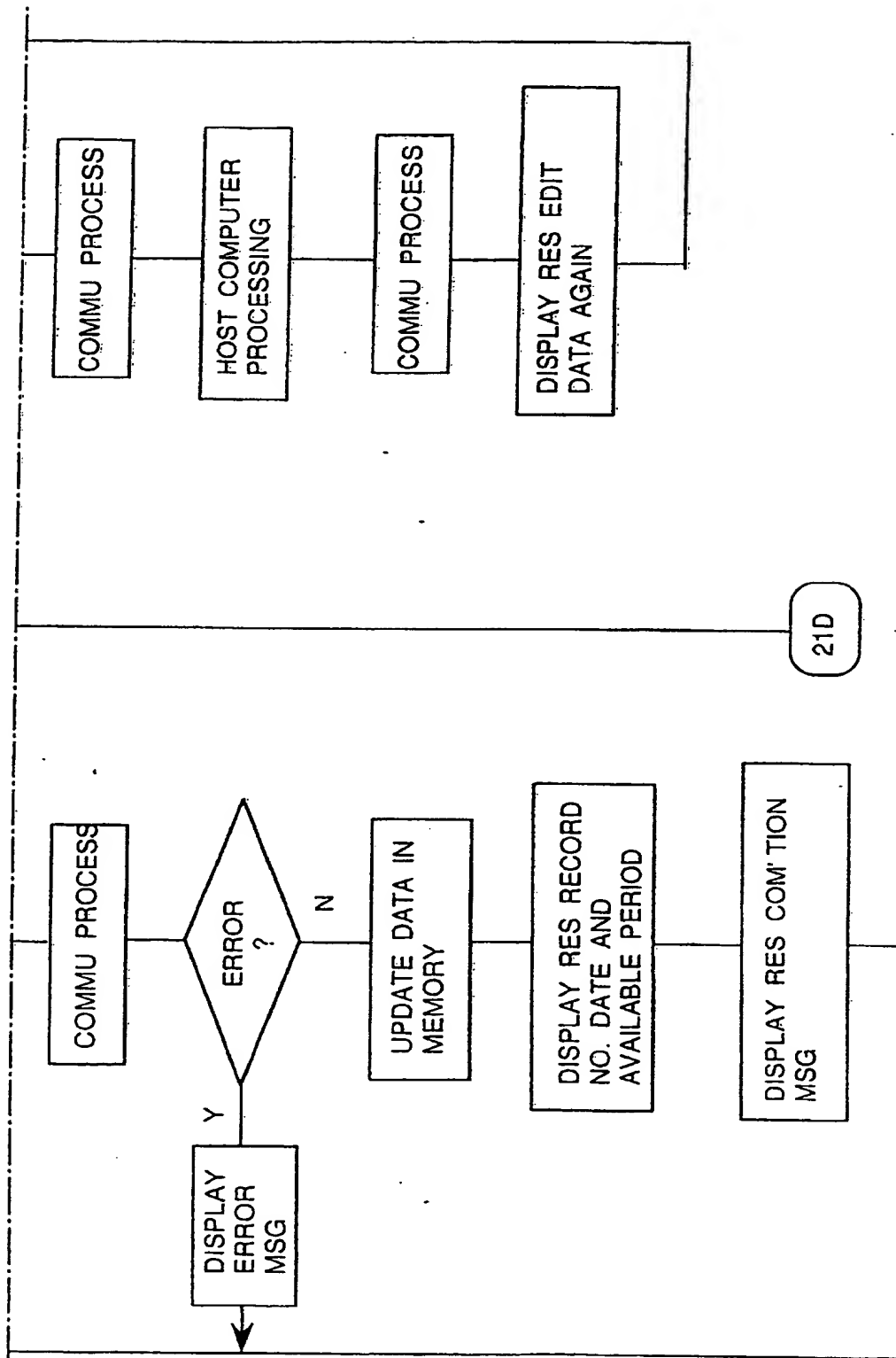


FIG. 21C II

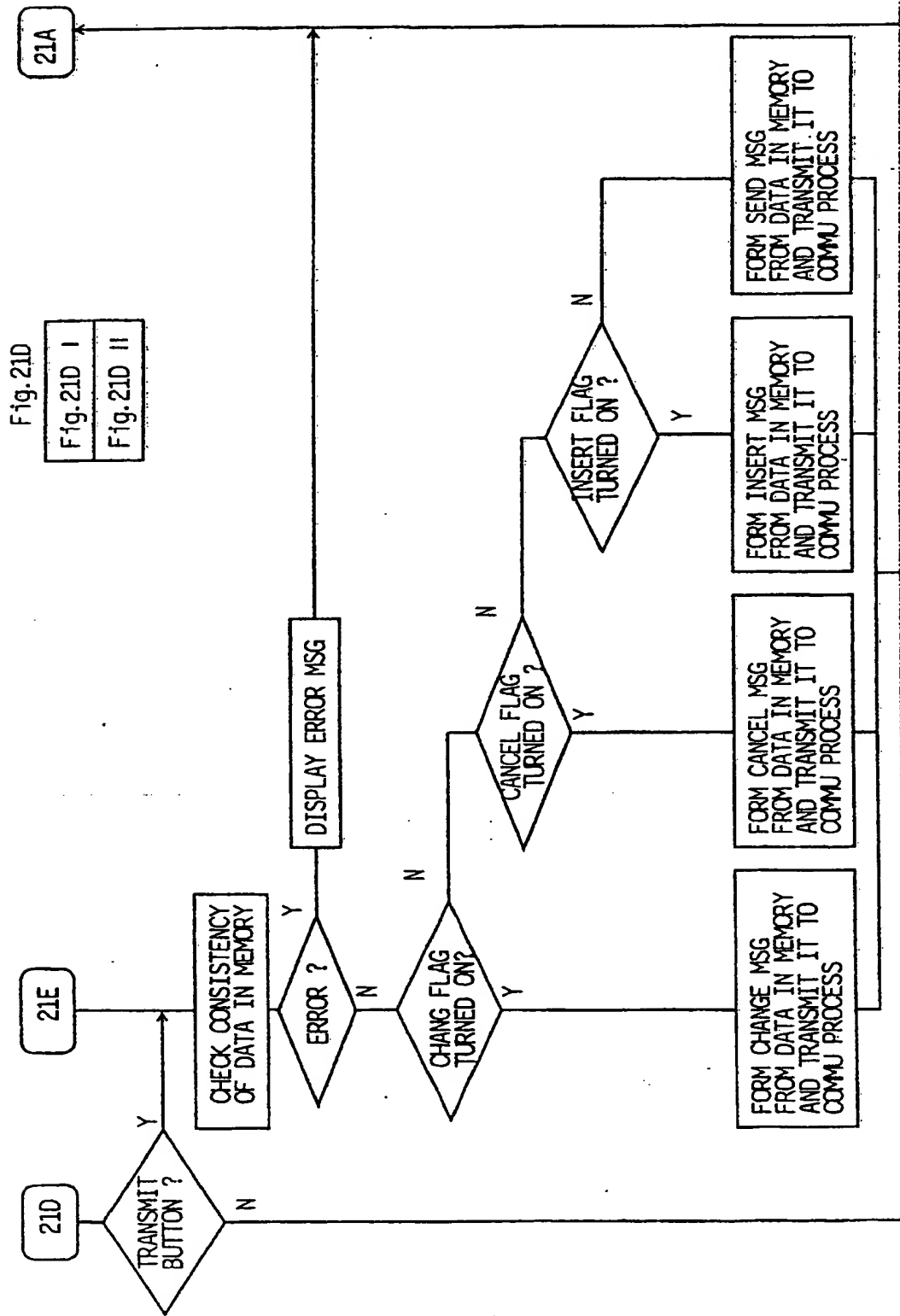


FIG. 21D I

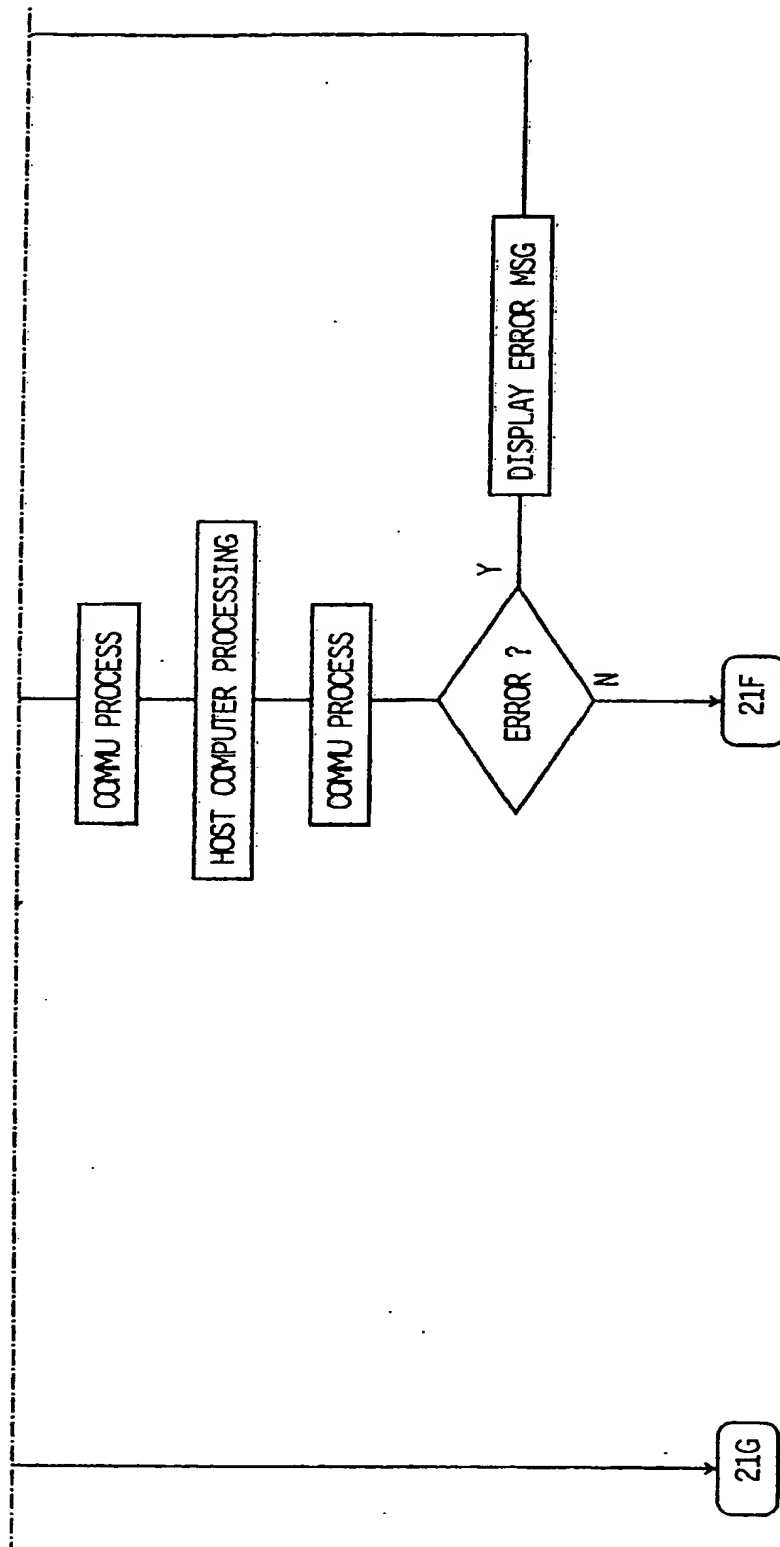


FIG. 21D II

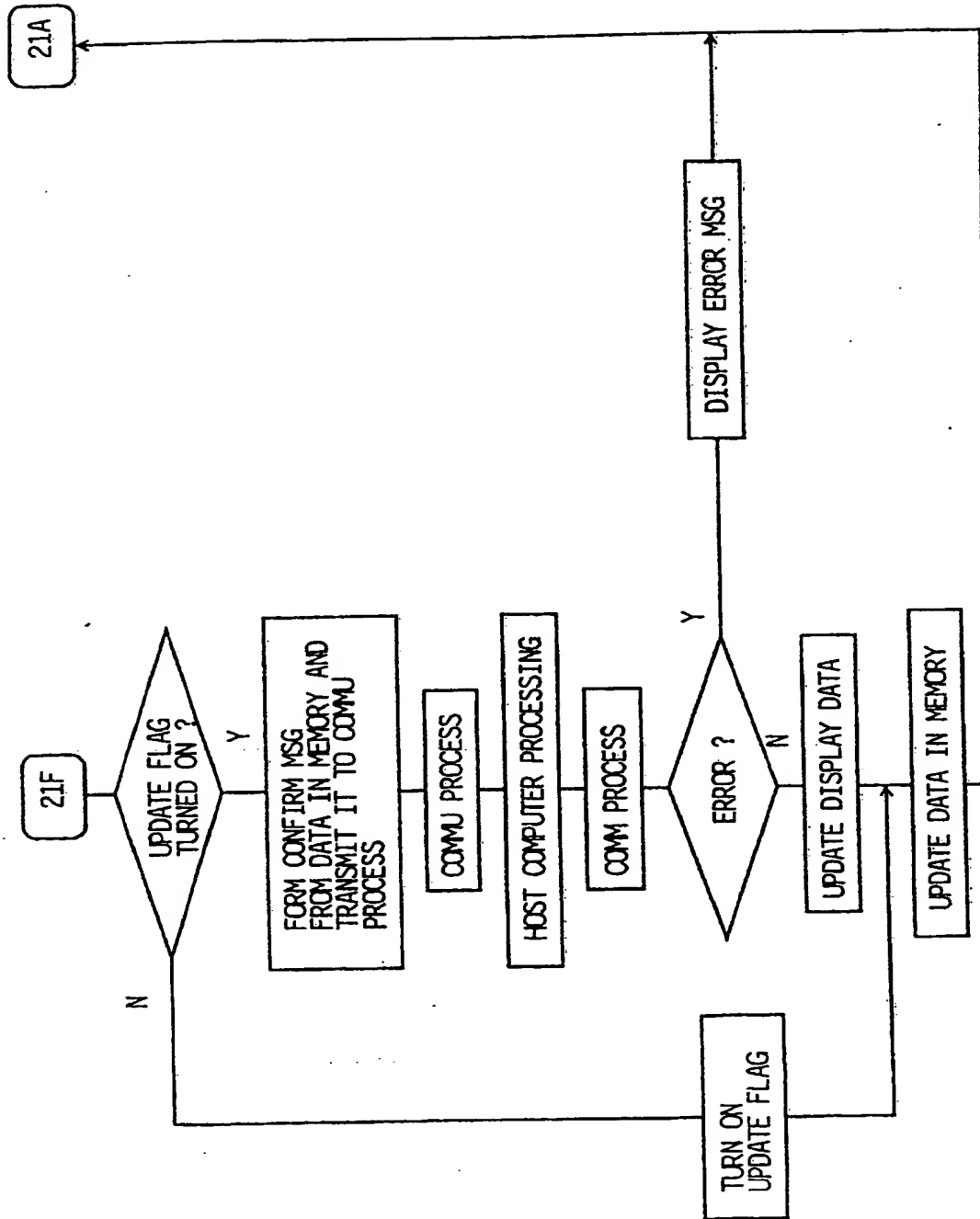


FIG. 21E

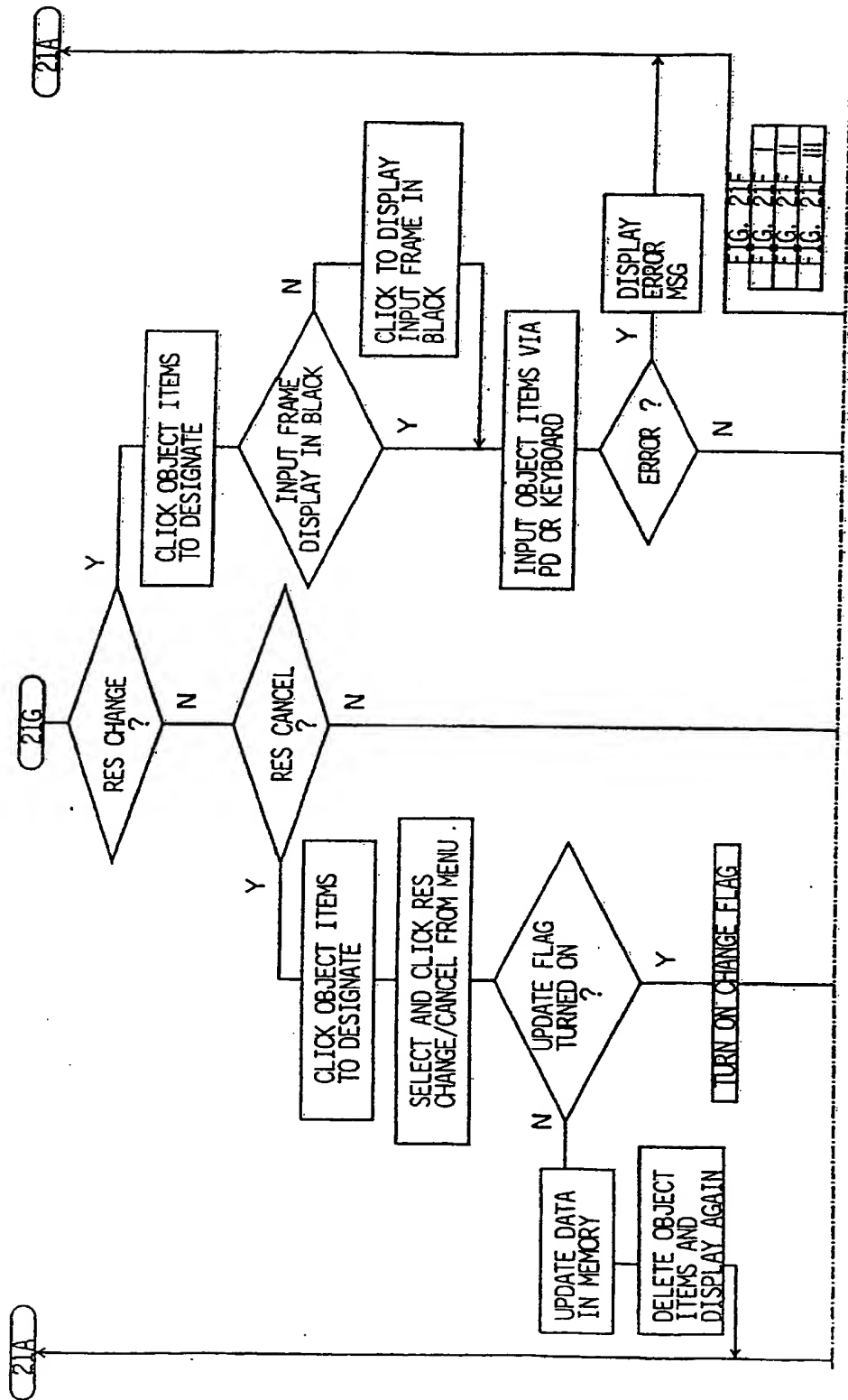


FIG. 21F I

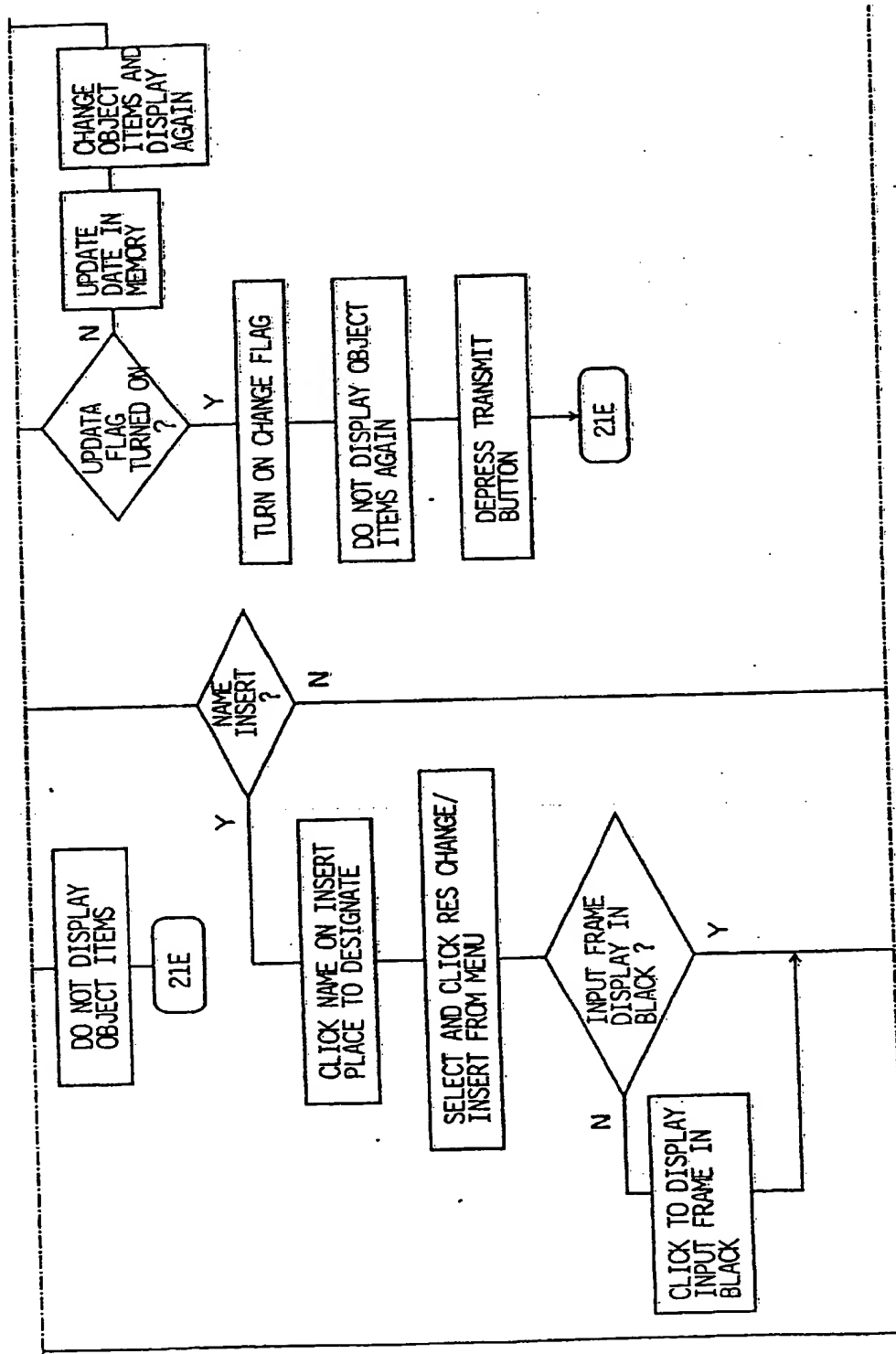


FIG. 21F II

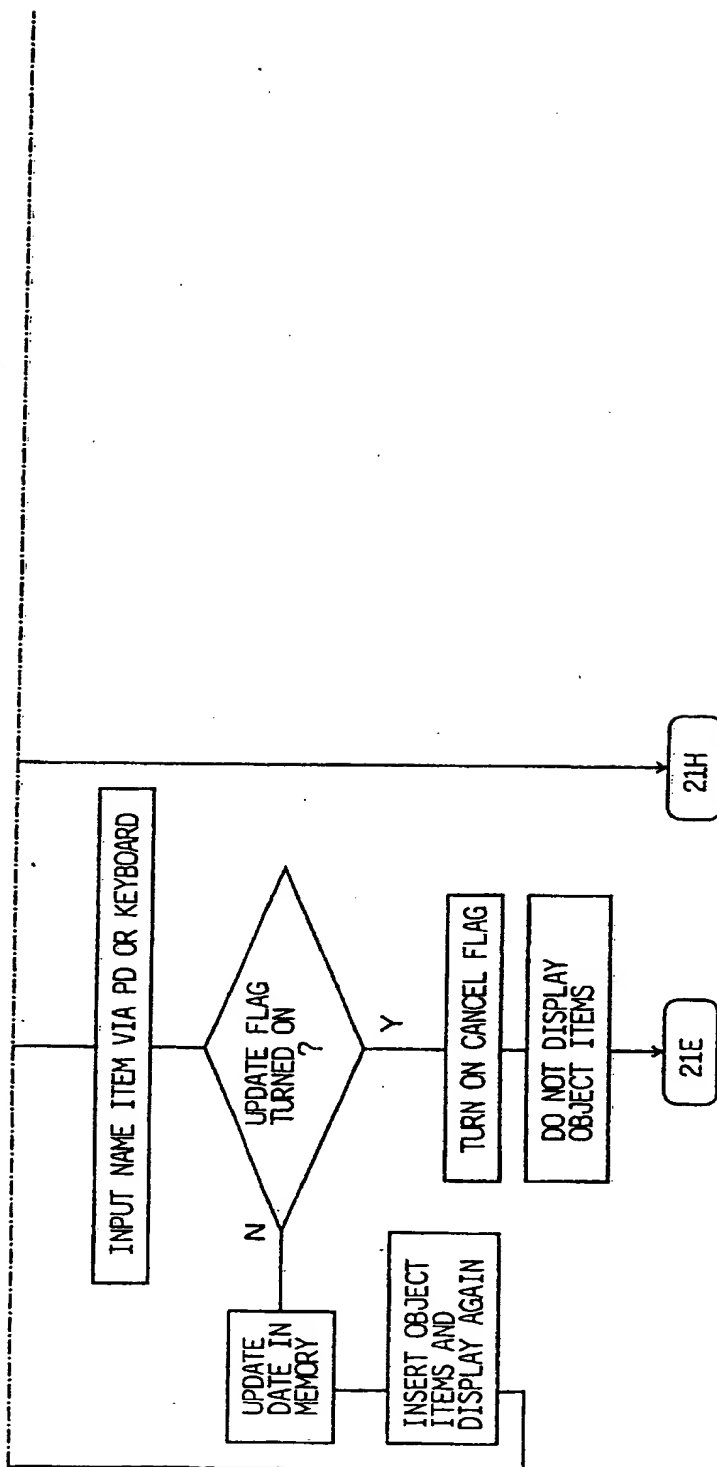


FIG. 21F III

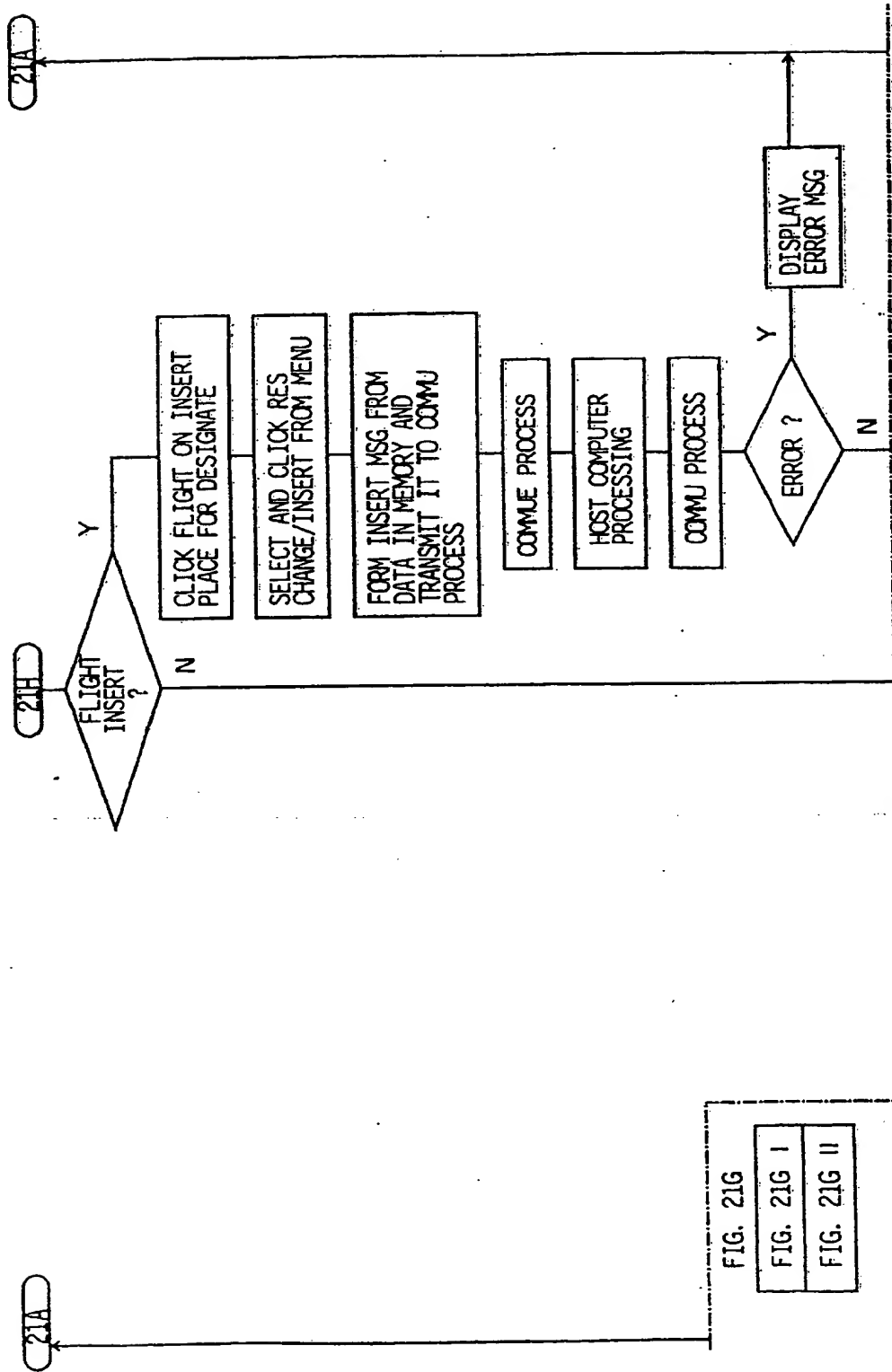


FIG. 21G I

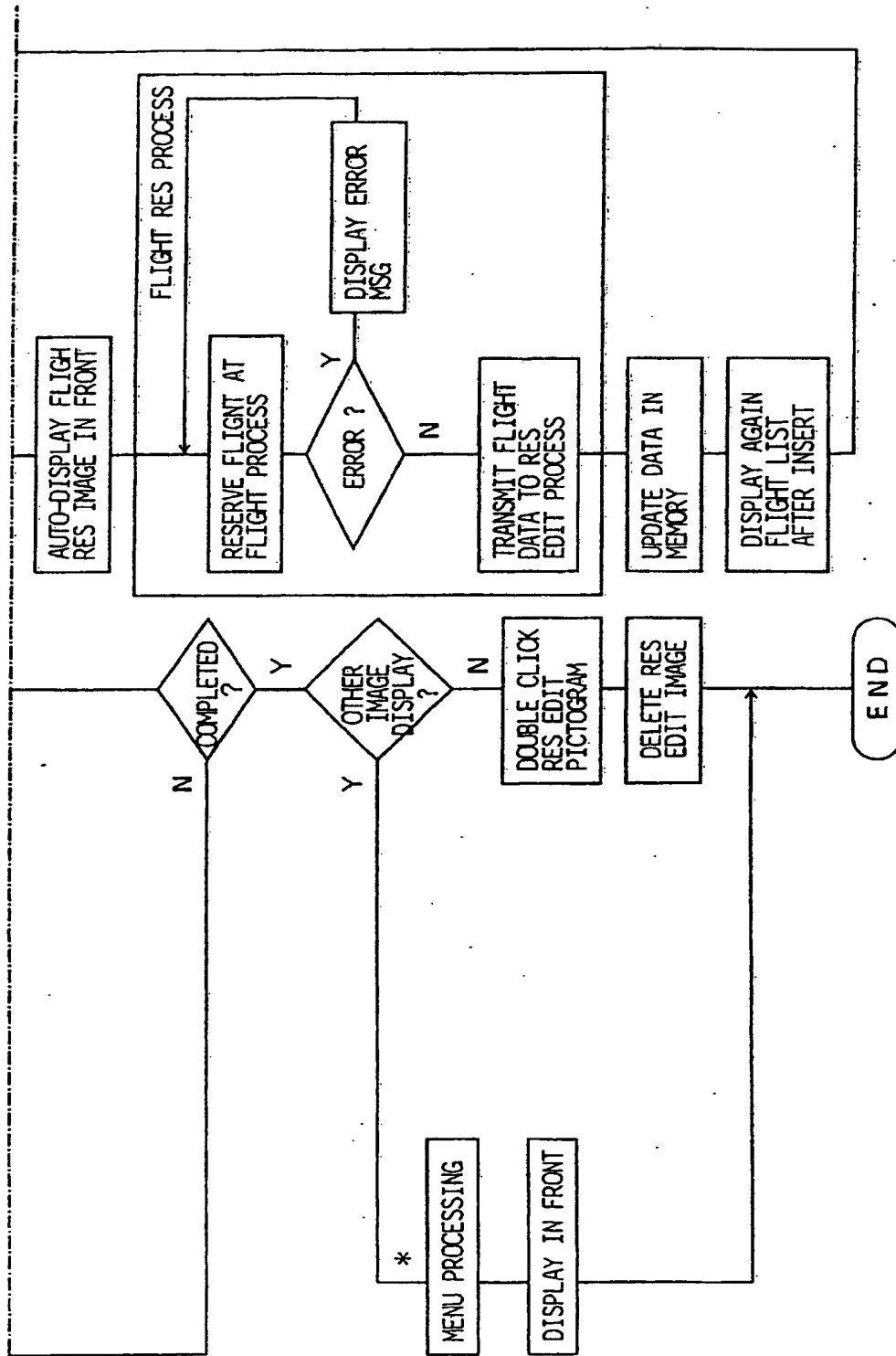


FIG. 21G II

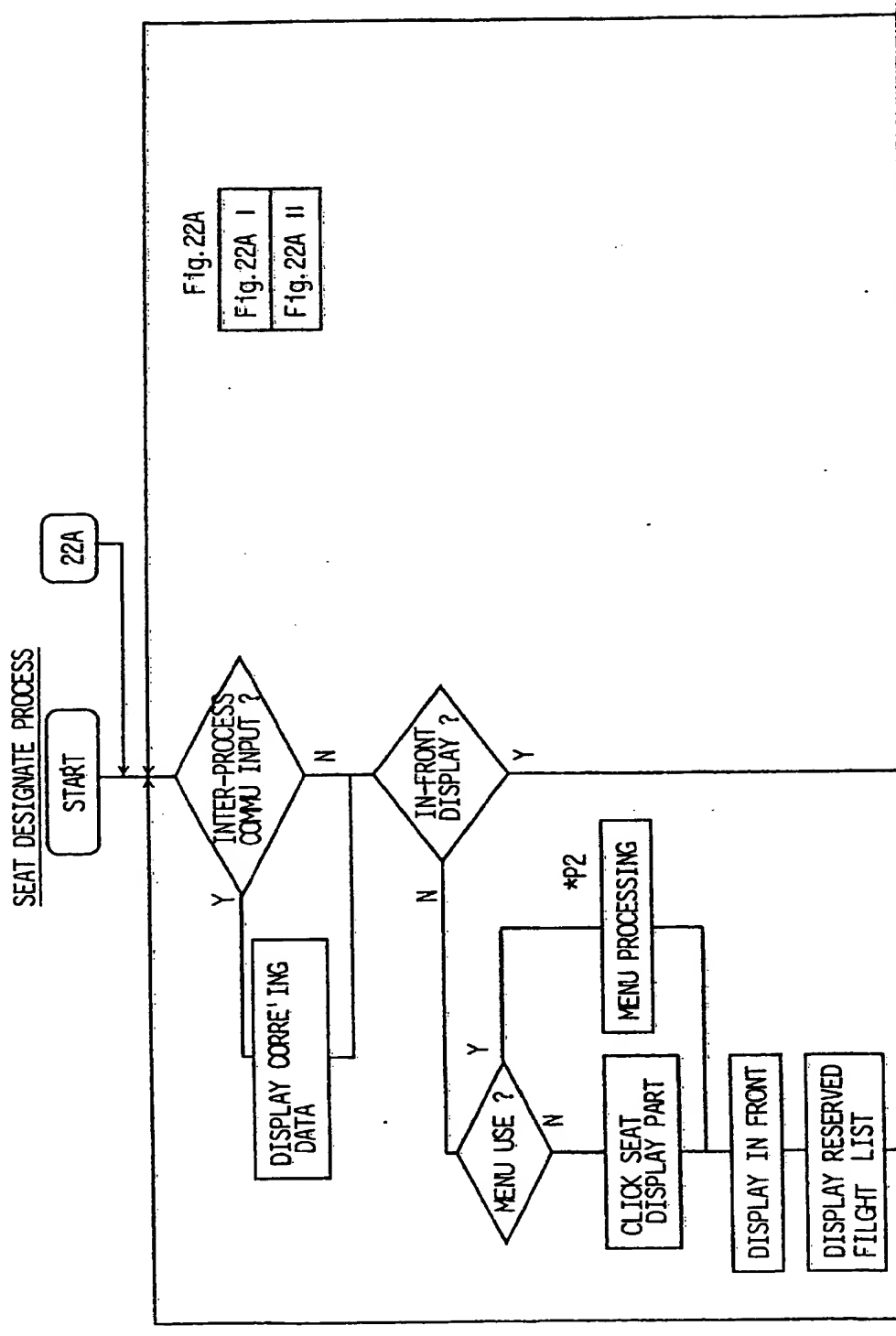


FIG. 22A I

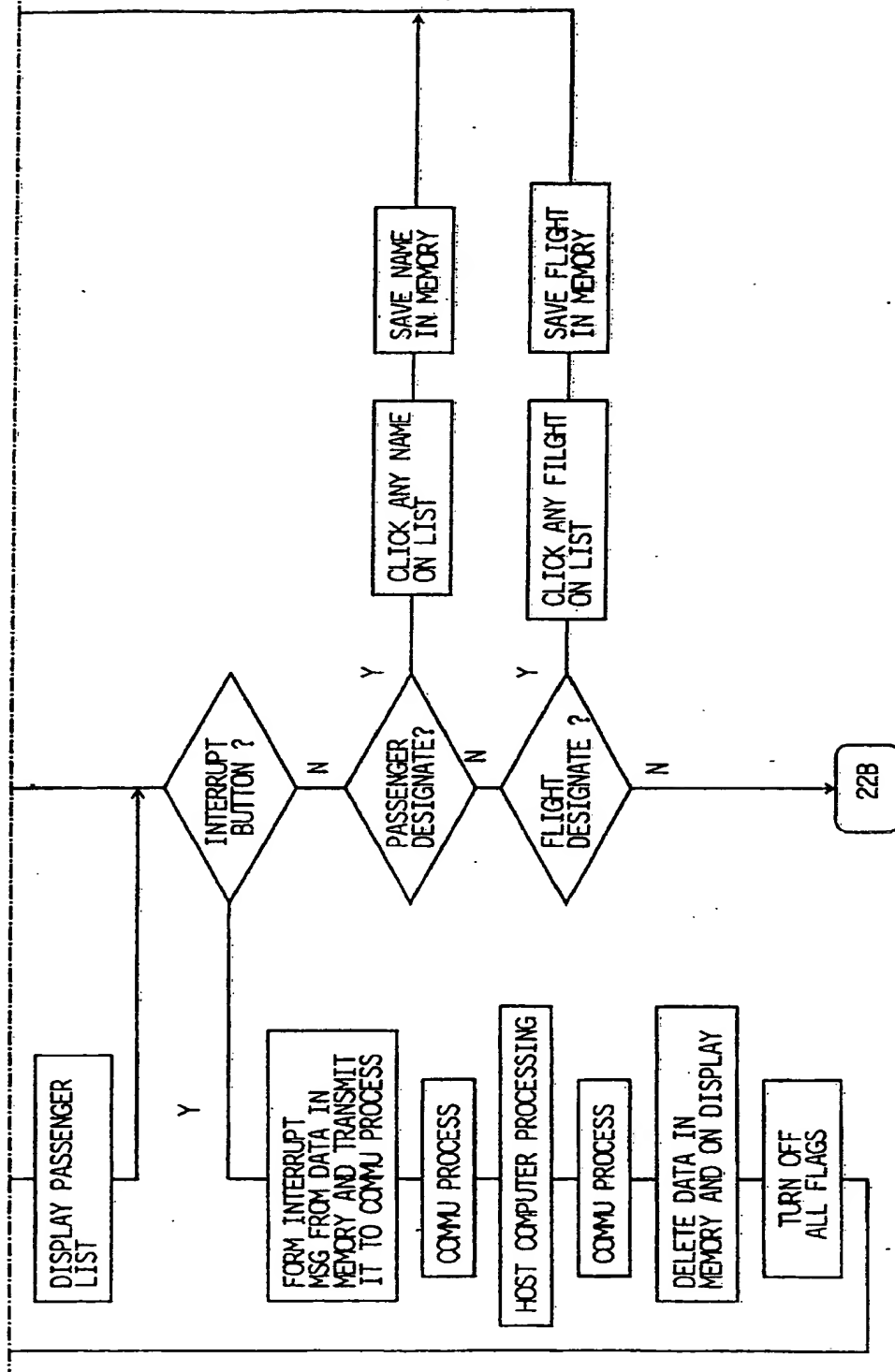


FIG. 22A II

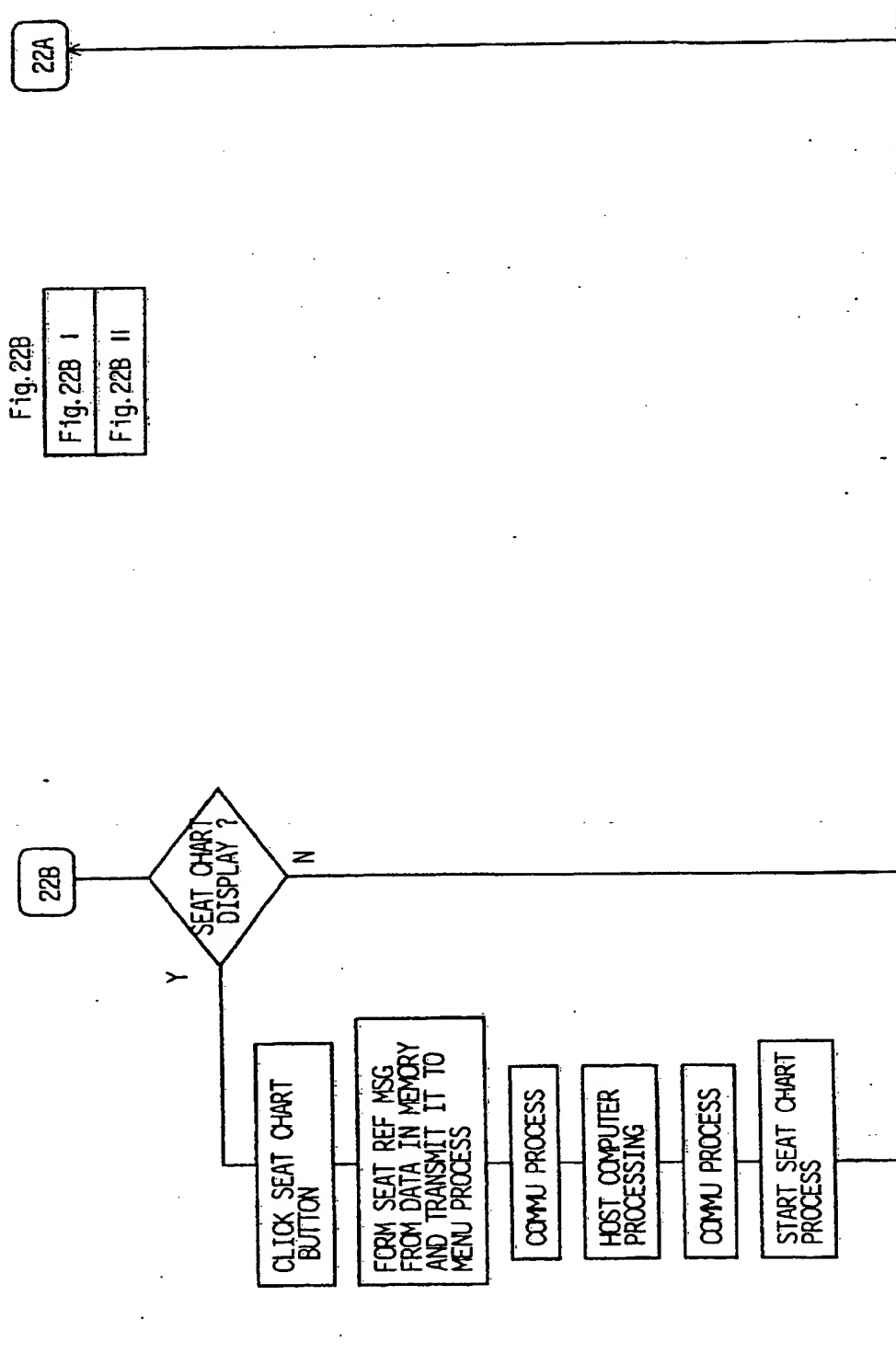


Fig. 22B
Fig. 22B I
Fig. 22B II

FIG. 22B I

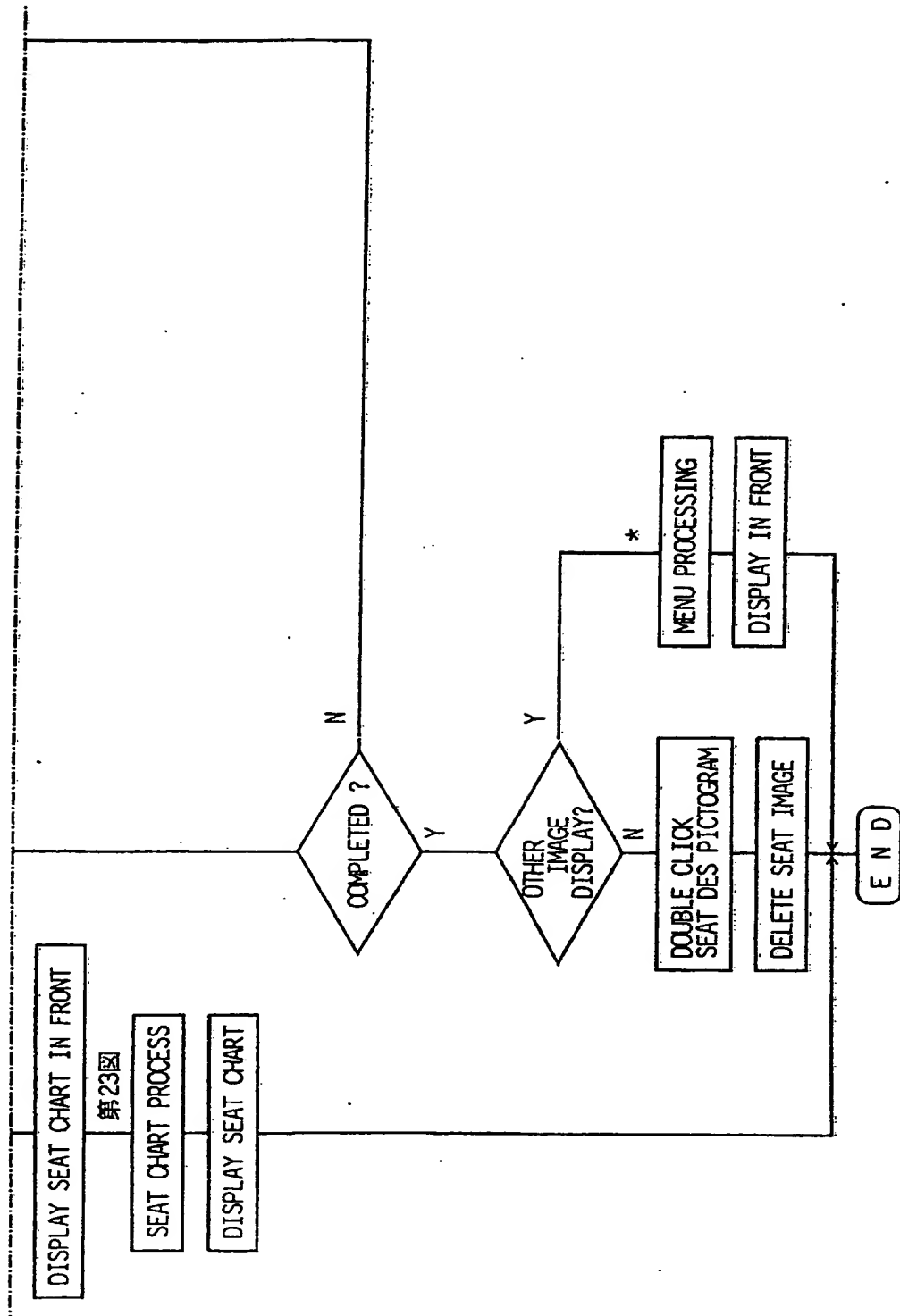
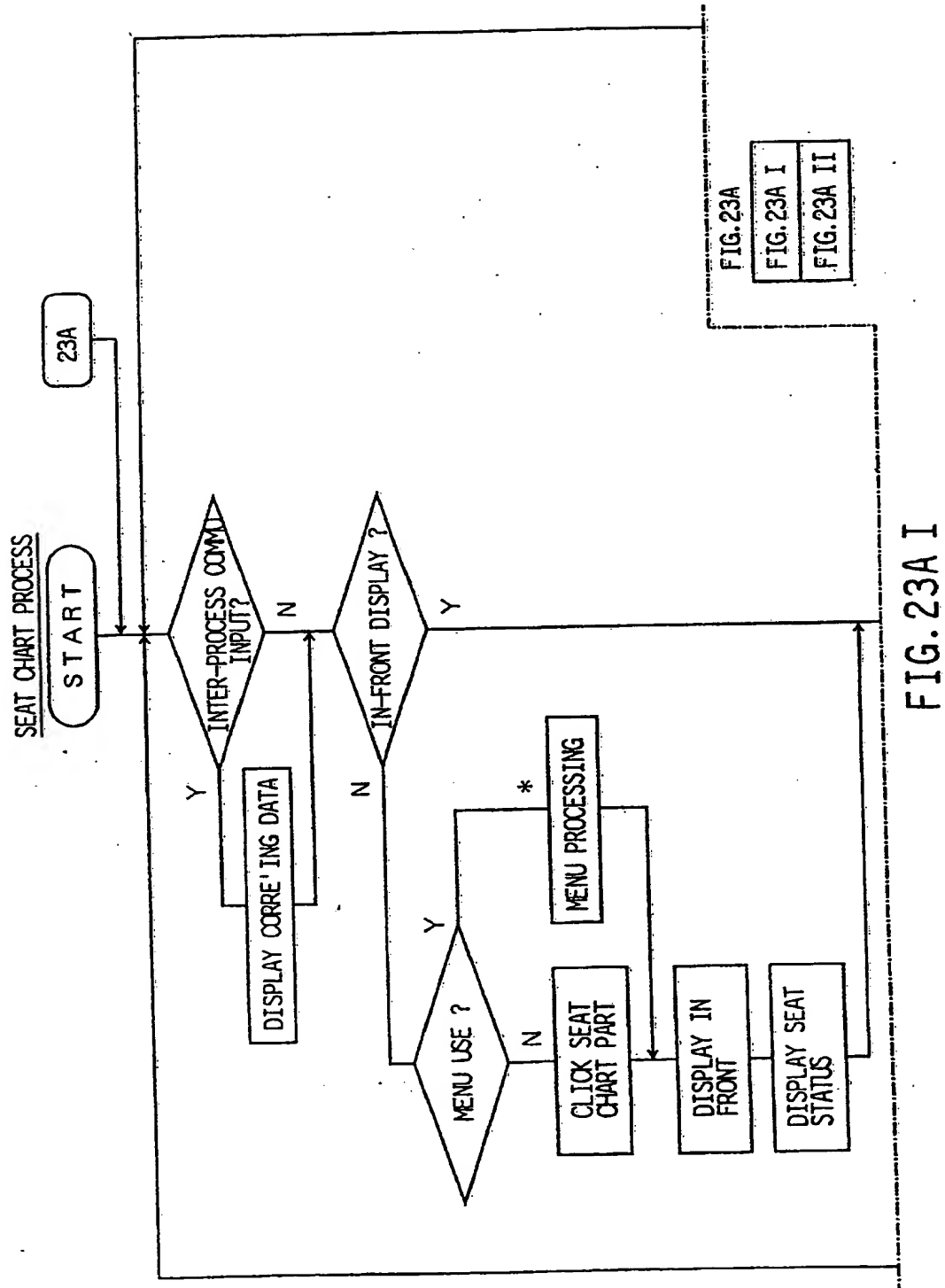


FIG. 22B II



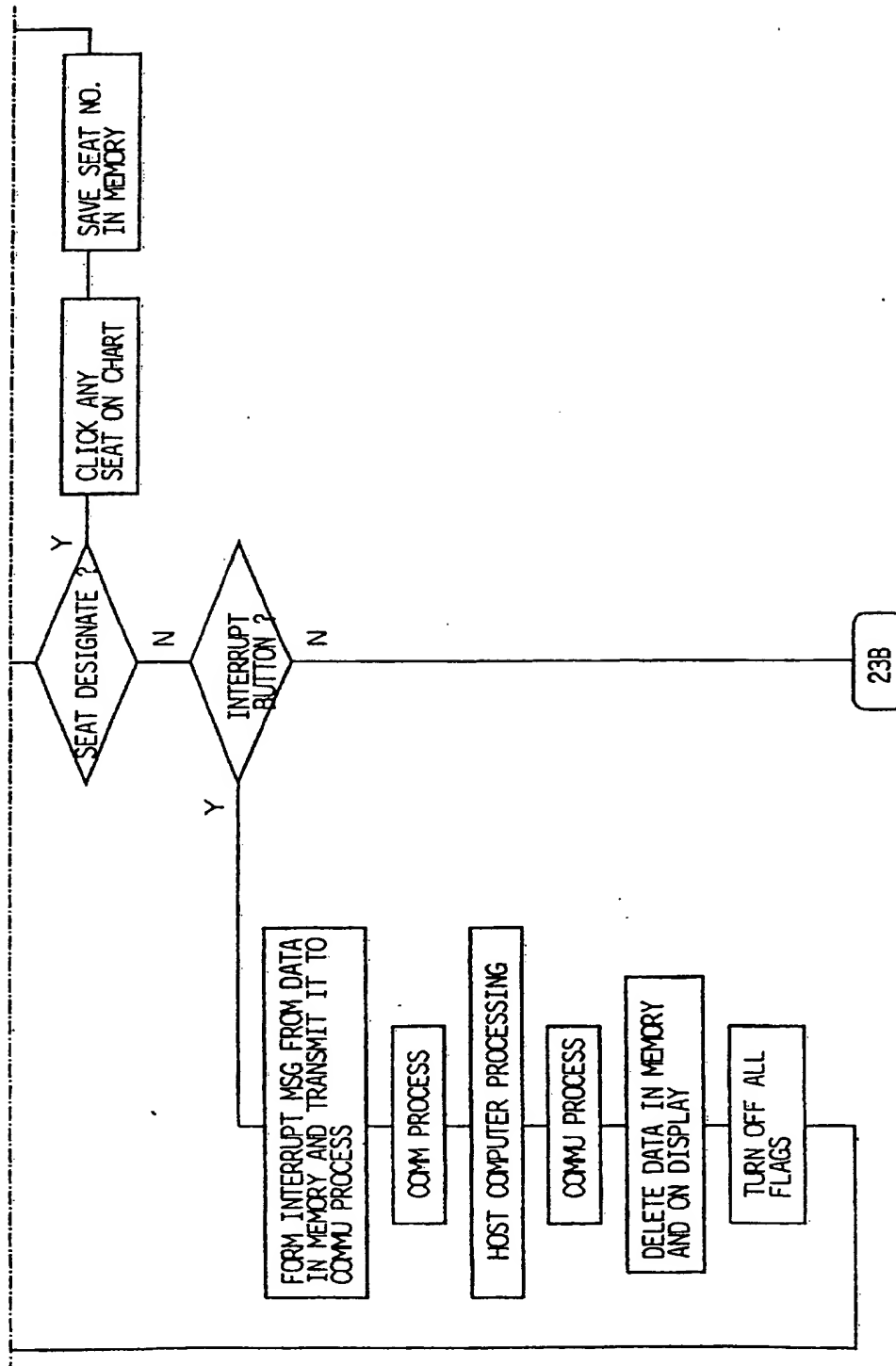


FIG. 23A II

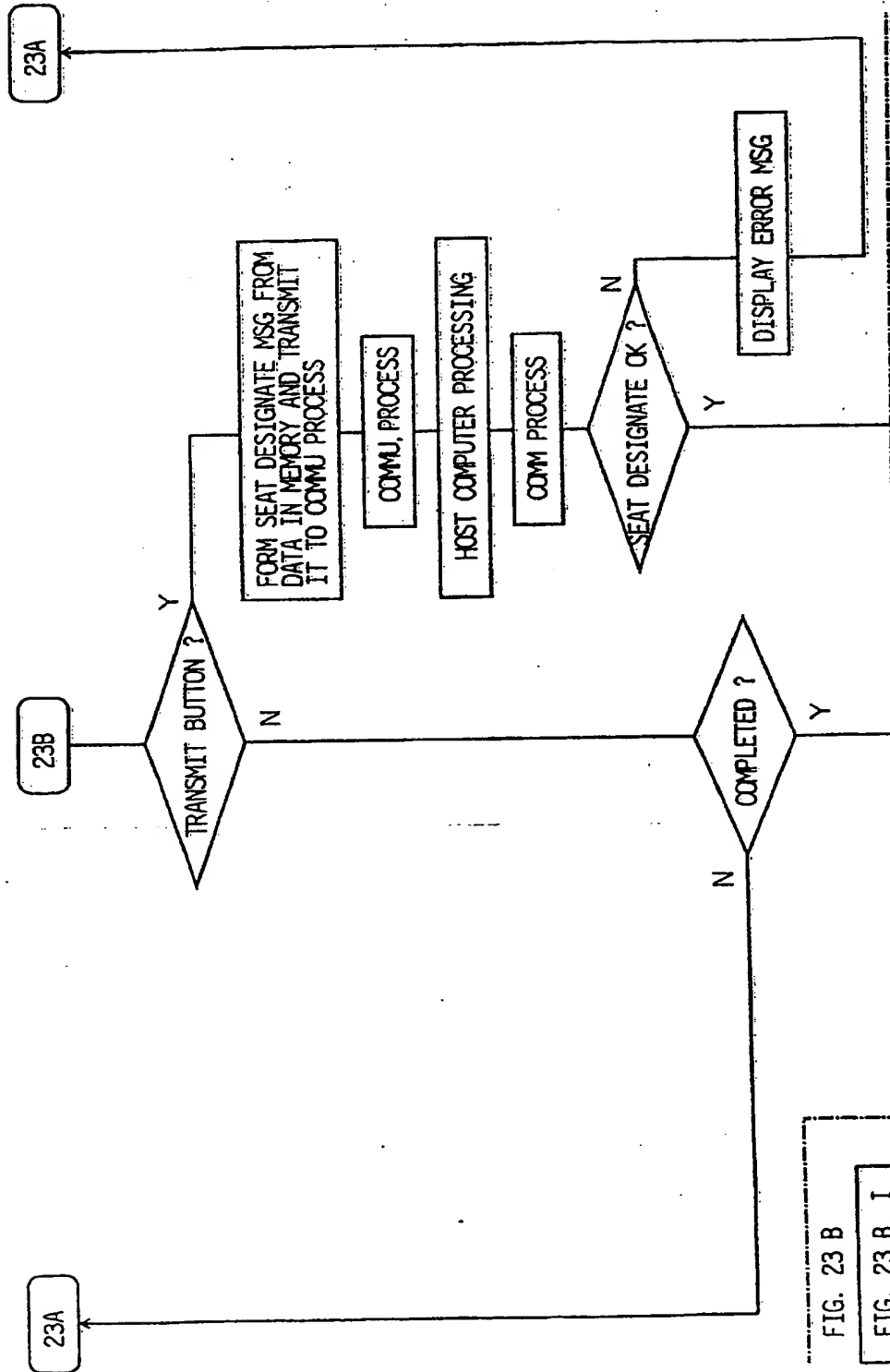


FIG. 23 B I

FIG. 23 B

FIG. 23 B I

FIG. 23 B II

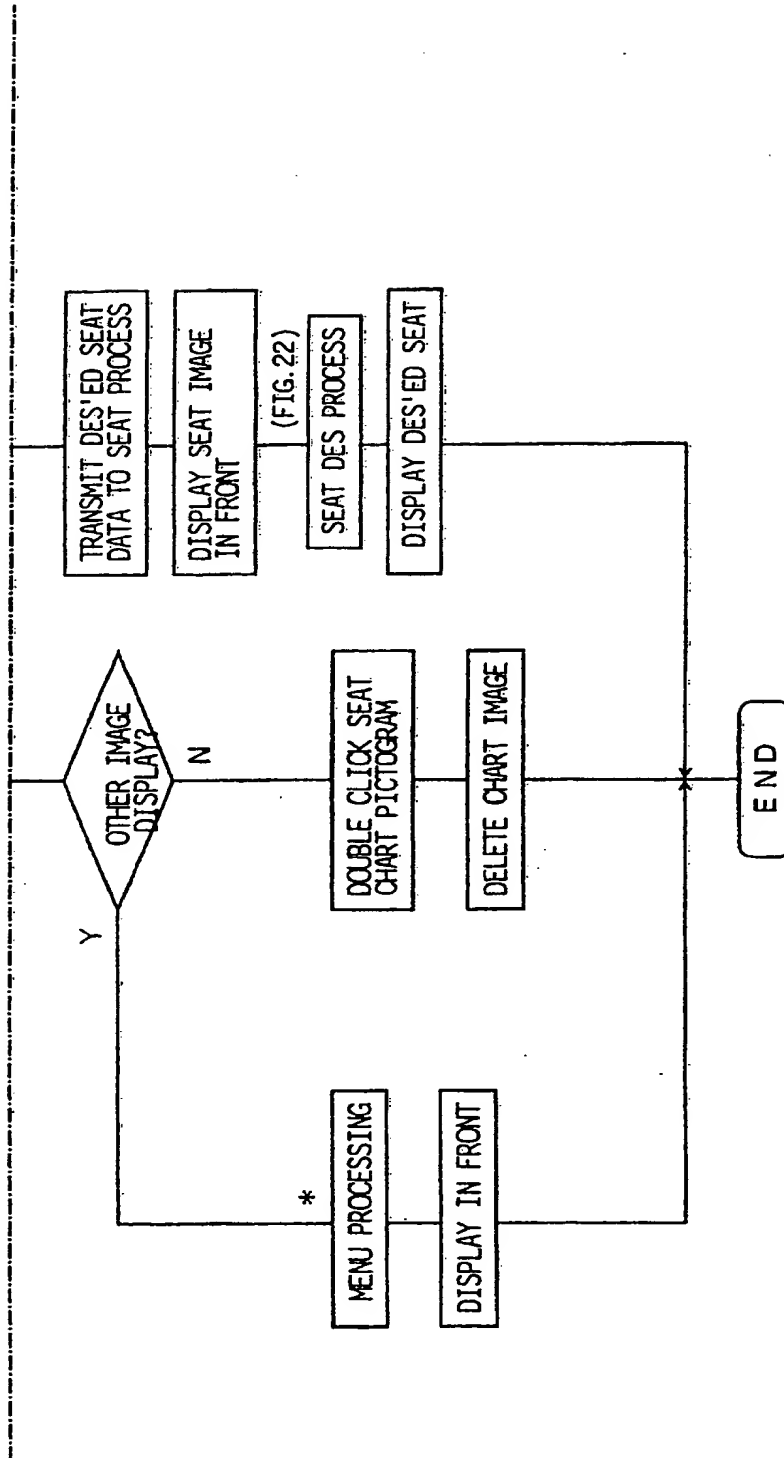


FIG. 23B II

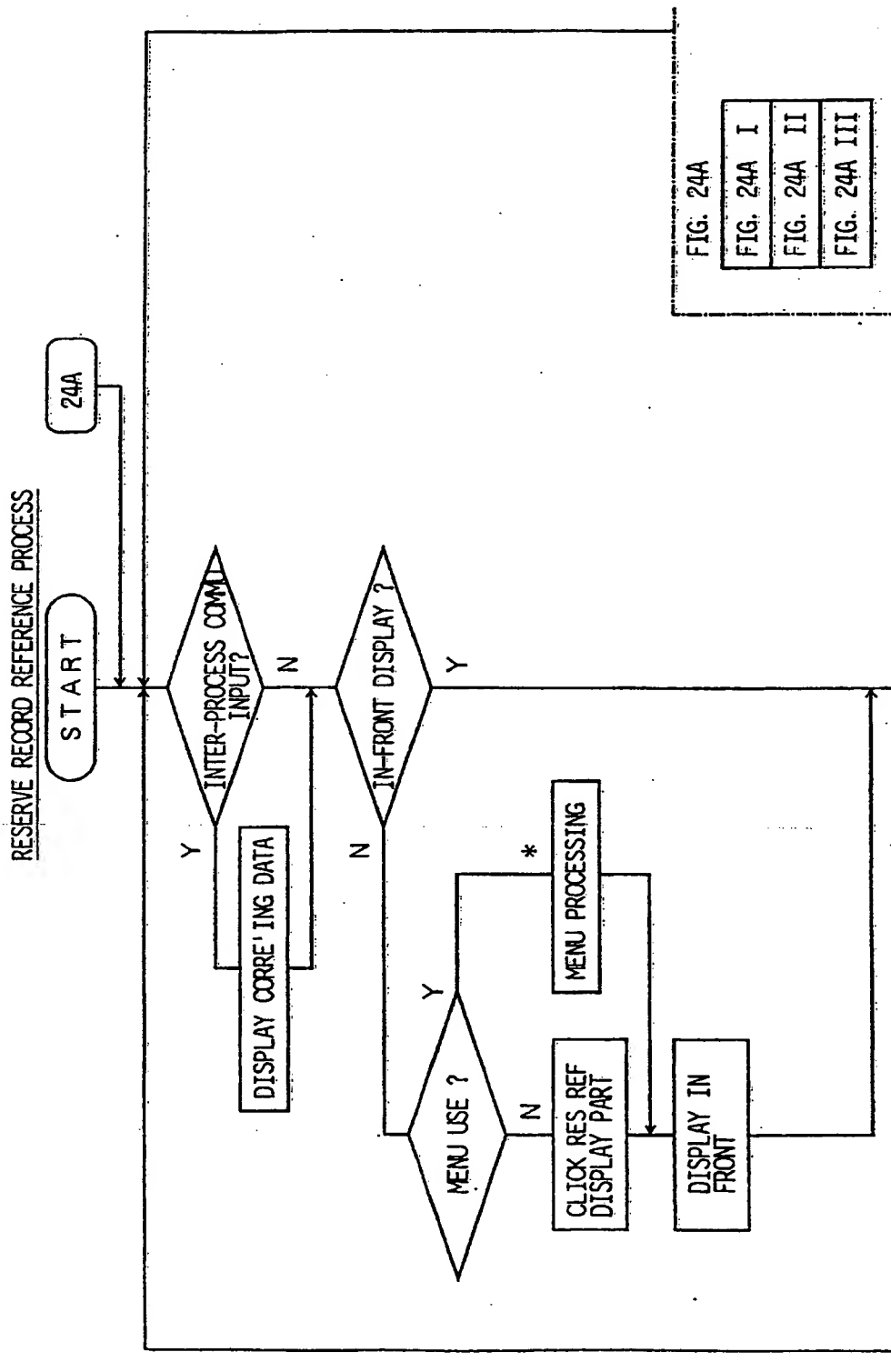


FIG. 24A I

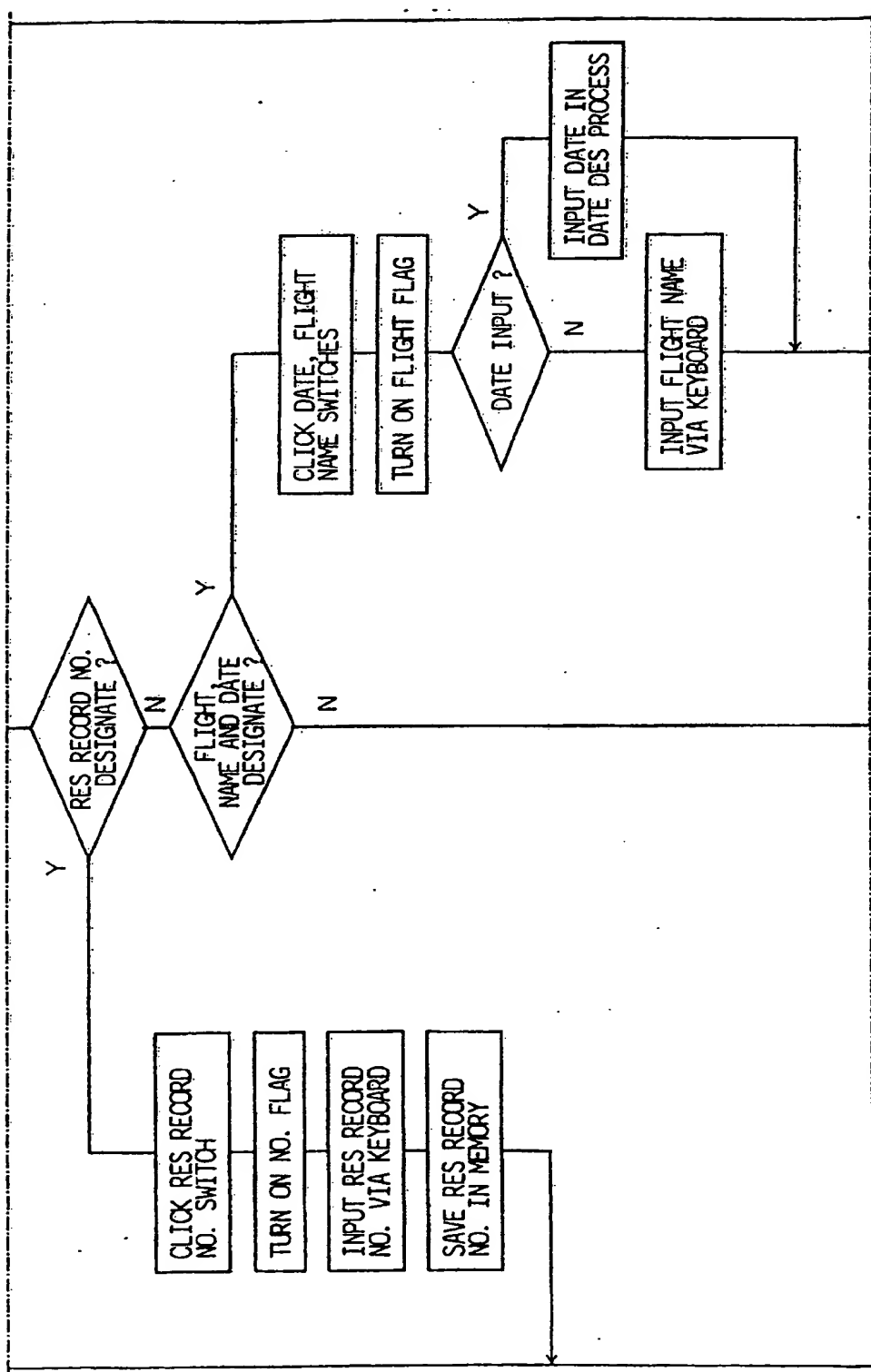


FIG. 24A II

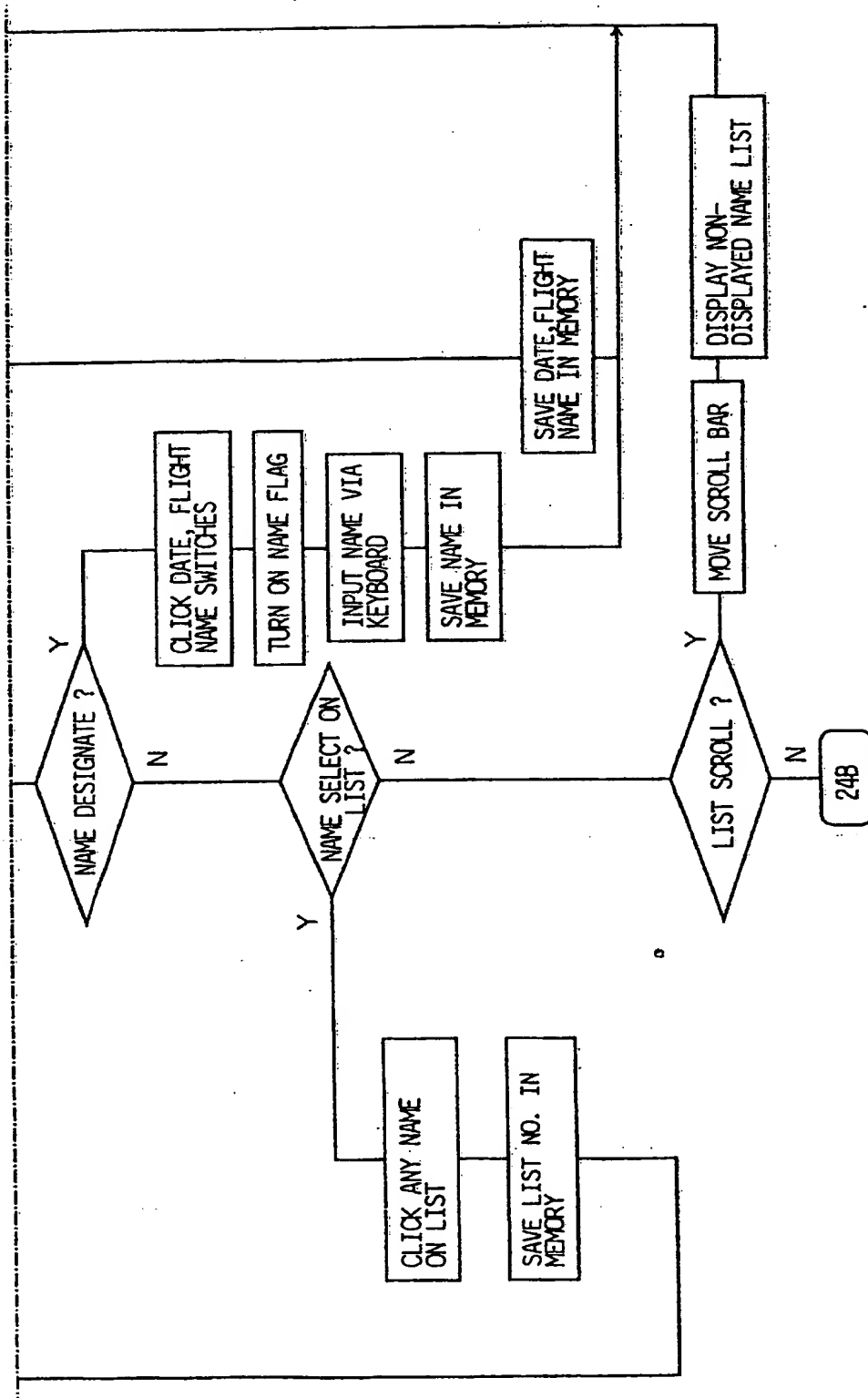


FIG. 24A III

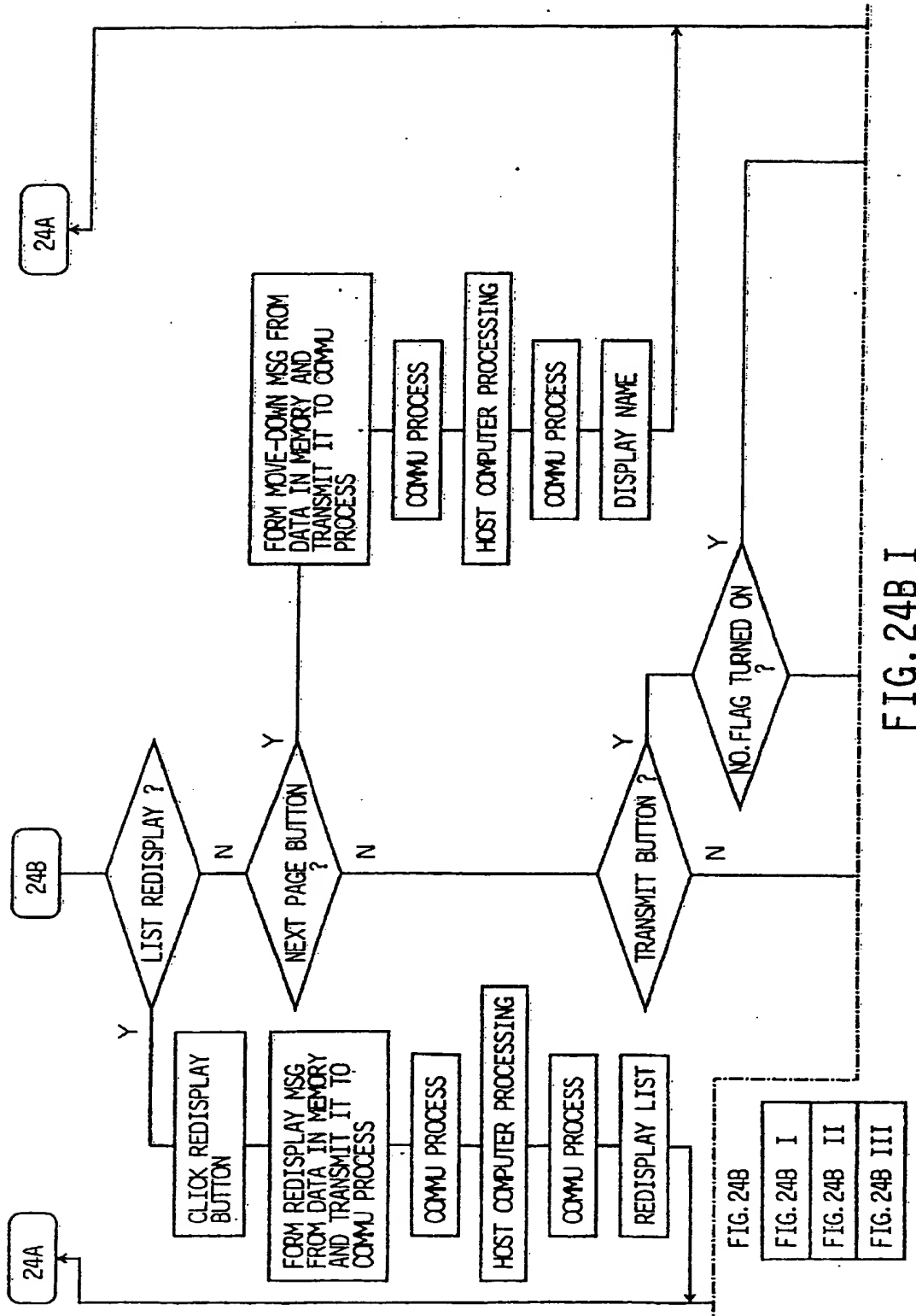


FIG. 24B I

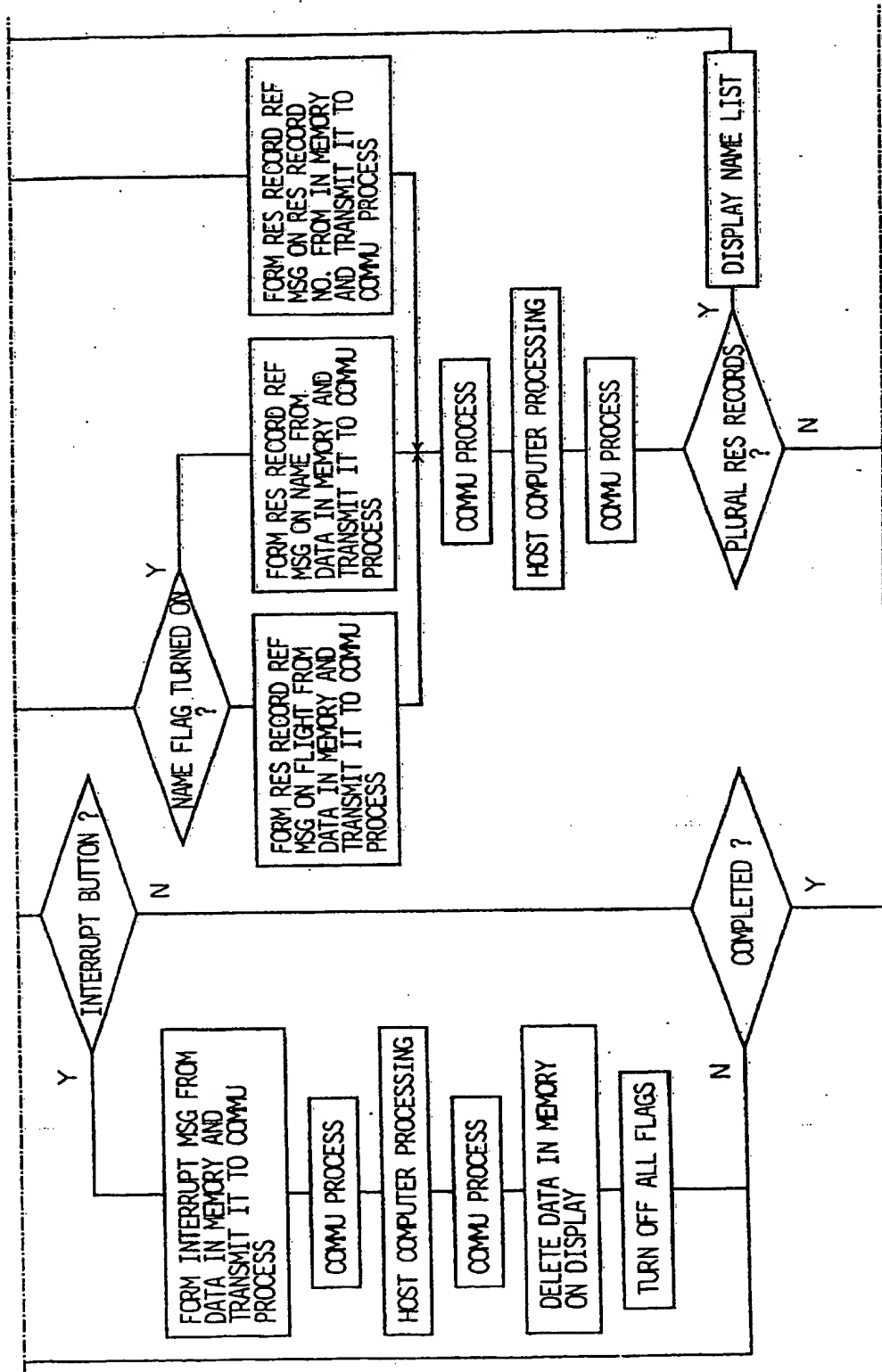


FIG. 24B II

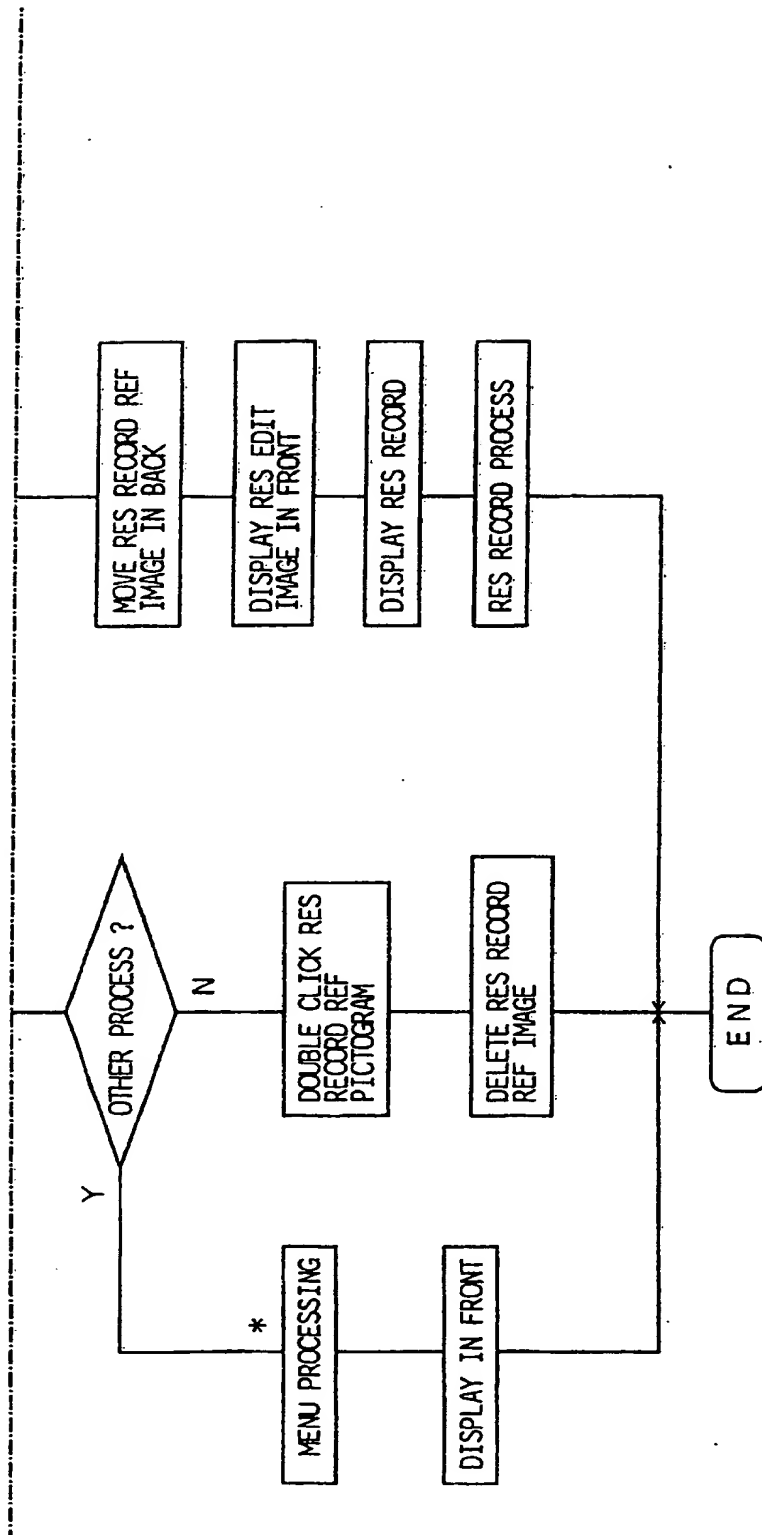


FIG. 24B III

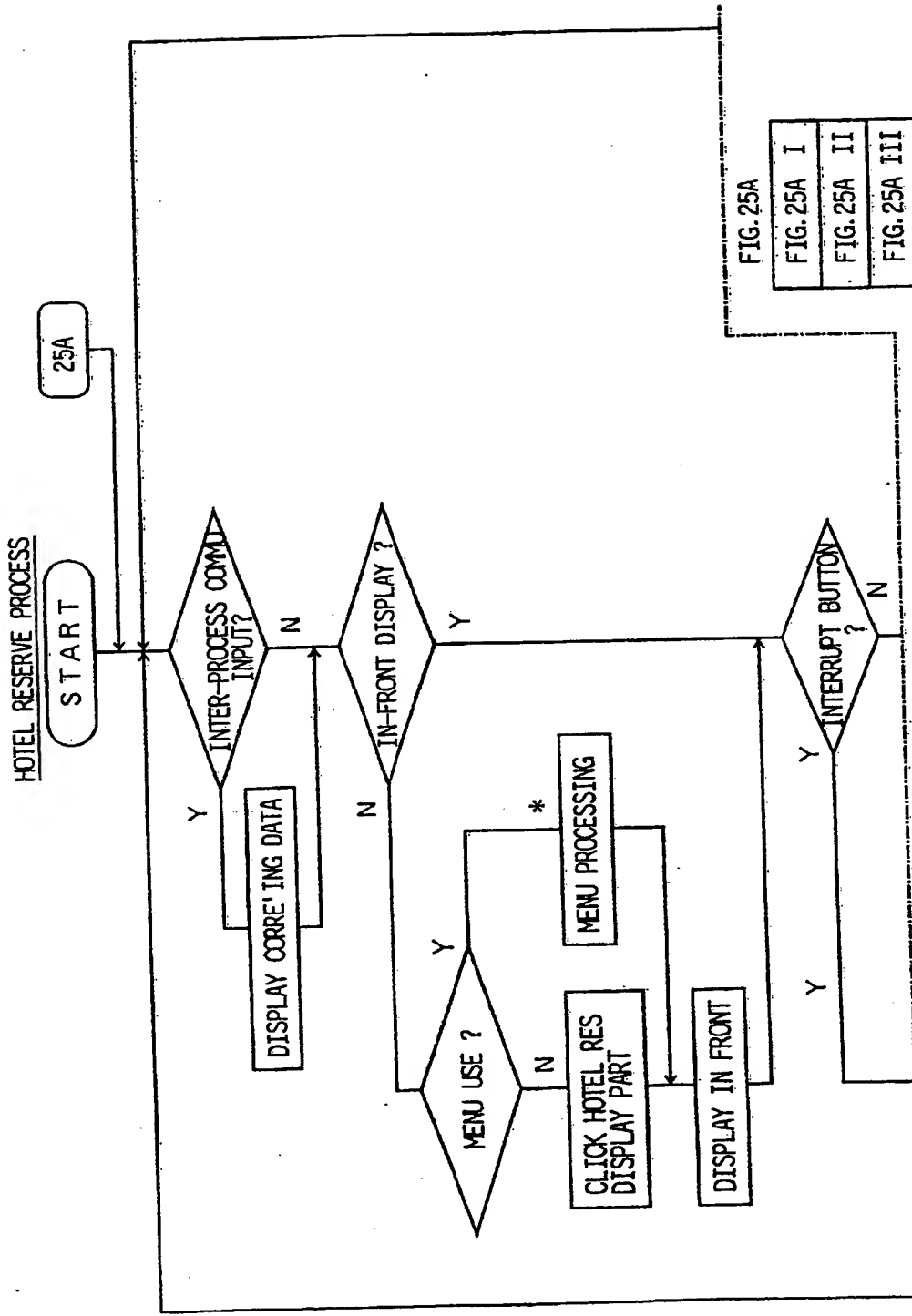


FIG. 25A I

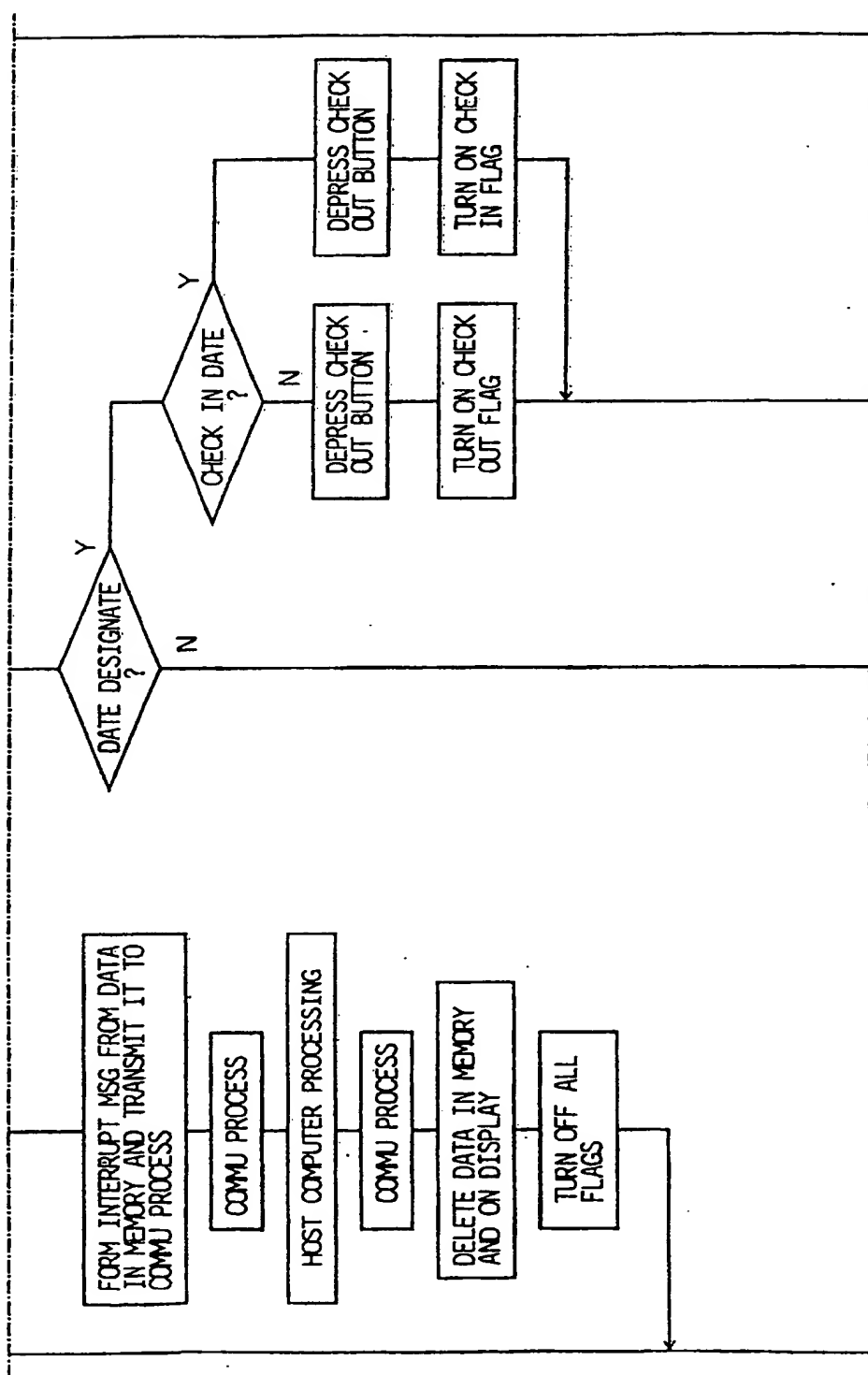


FIG. 25A II

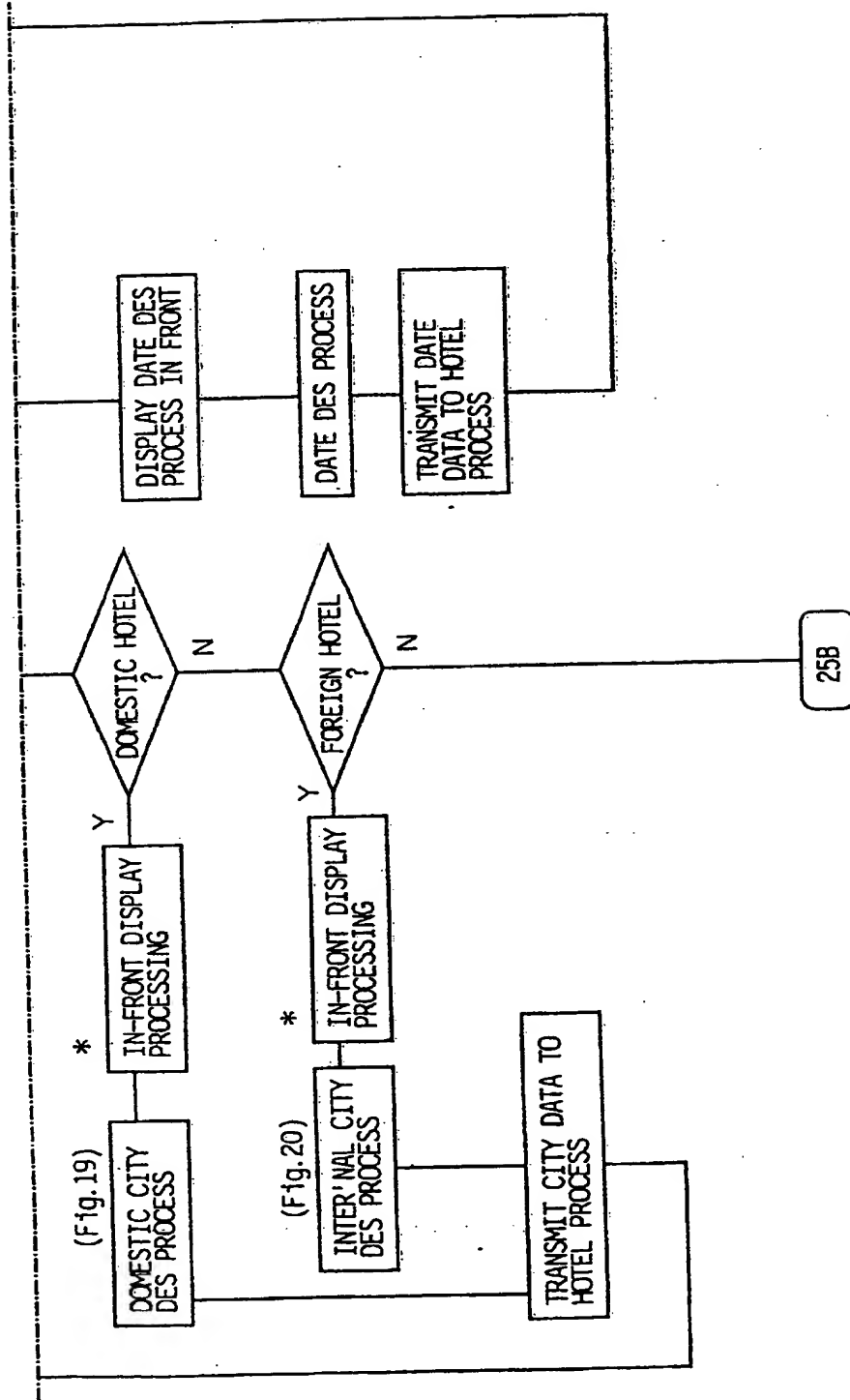


FIG. 25A III

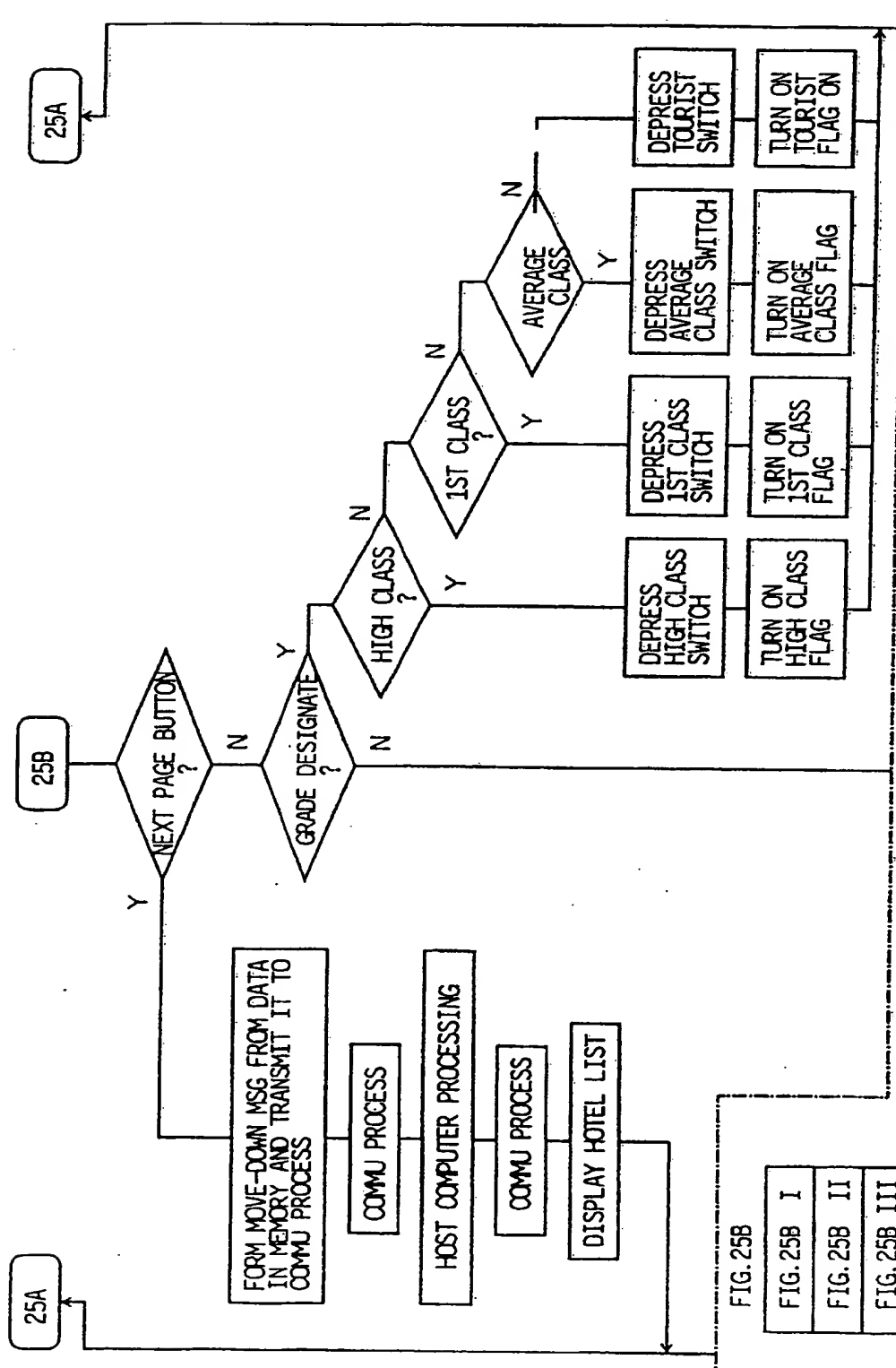


FIG. 25B I

FIG. 25B

FIG. 25B I
FIG. 25B II
FIG. 25B III

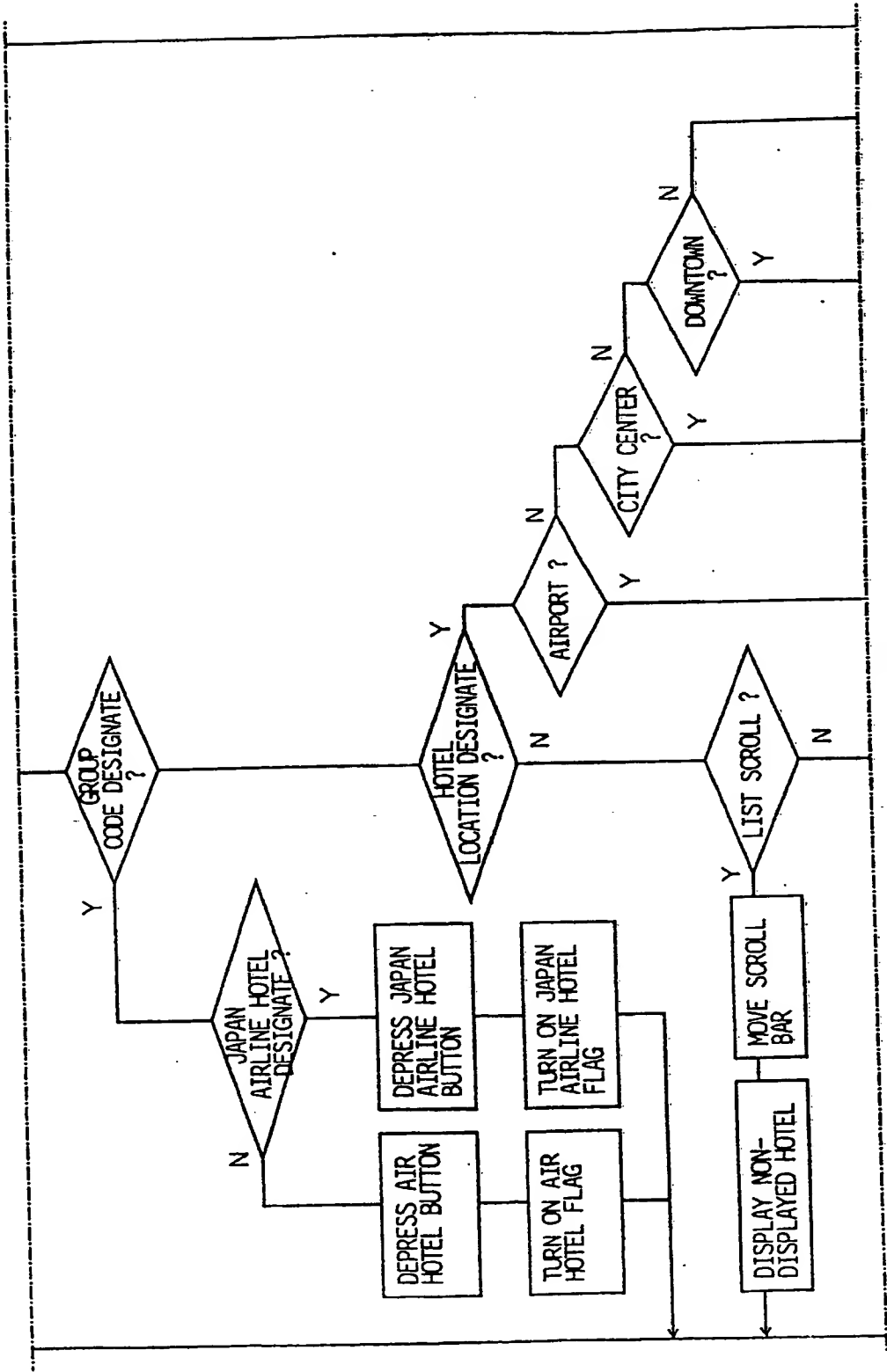


FIG. 25B II

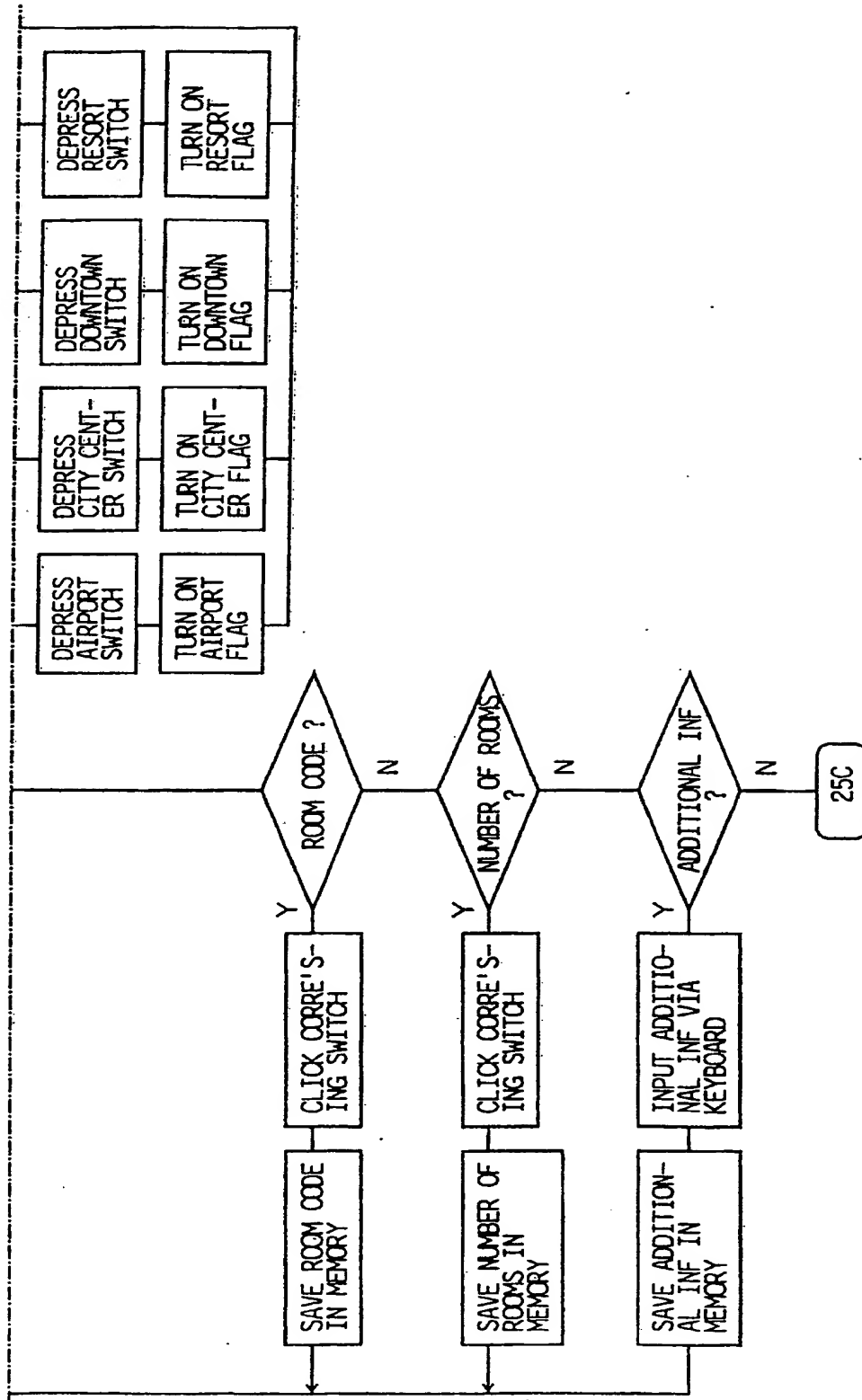


FIG. 25BIII

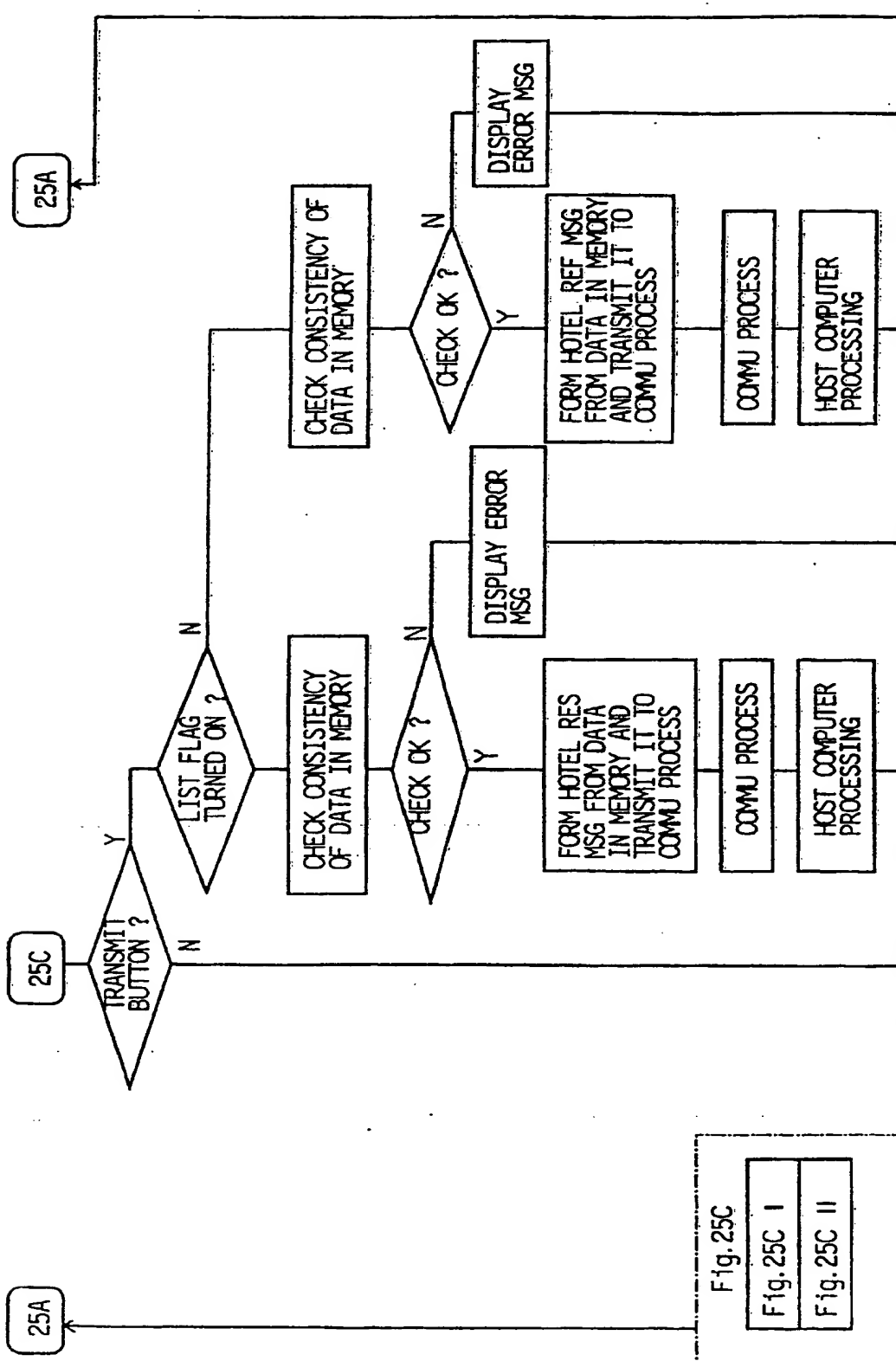


FIG. 25C I

Fig. 25C

Fig. 25C I
Fig. 25C II

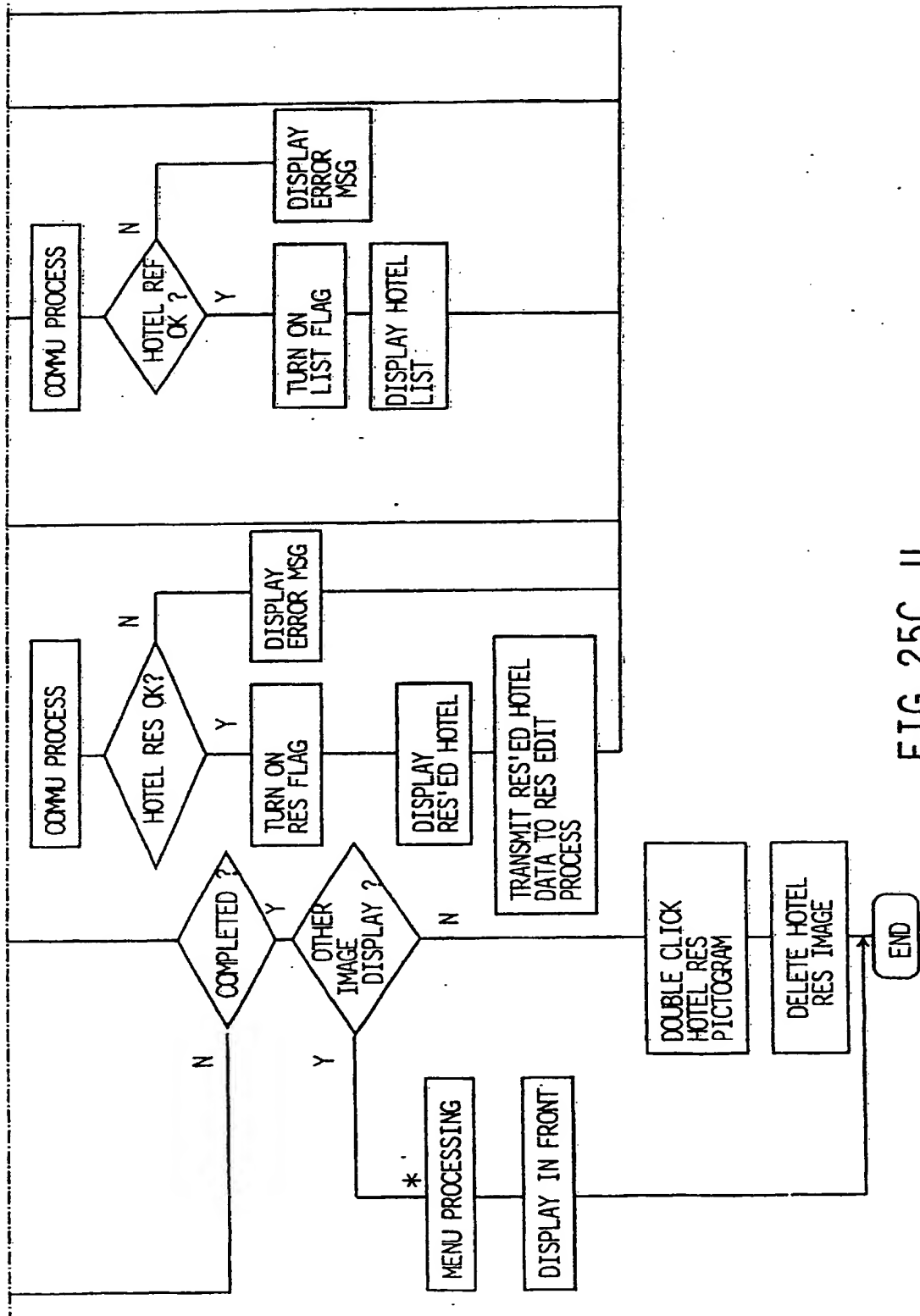
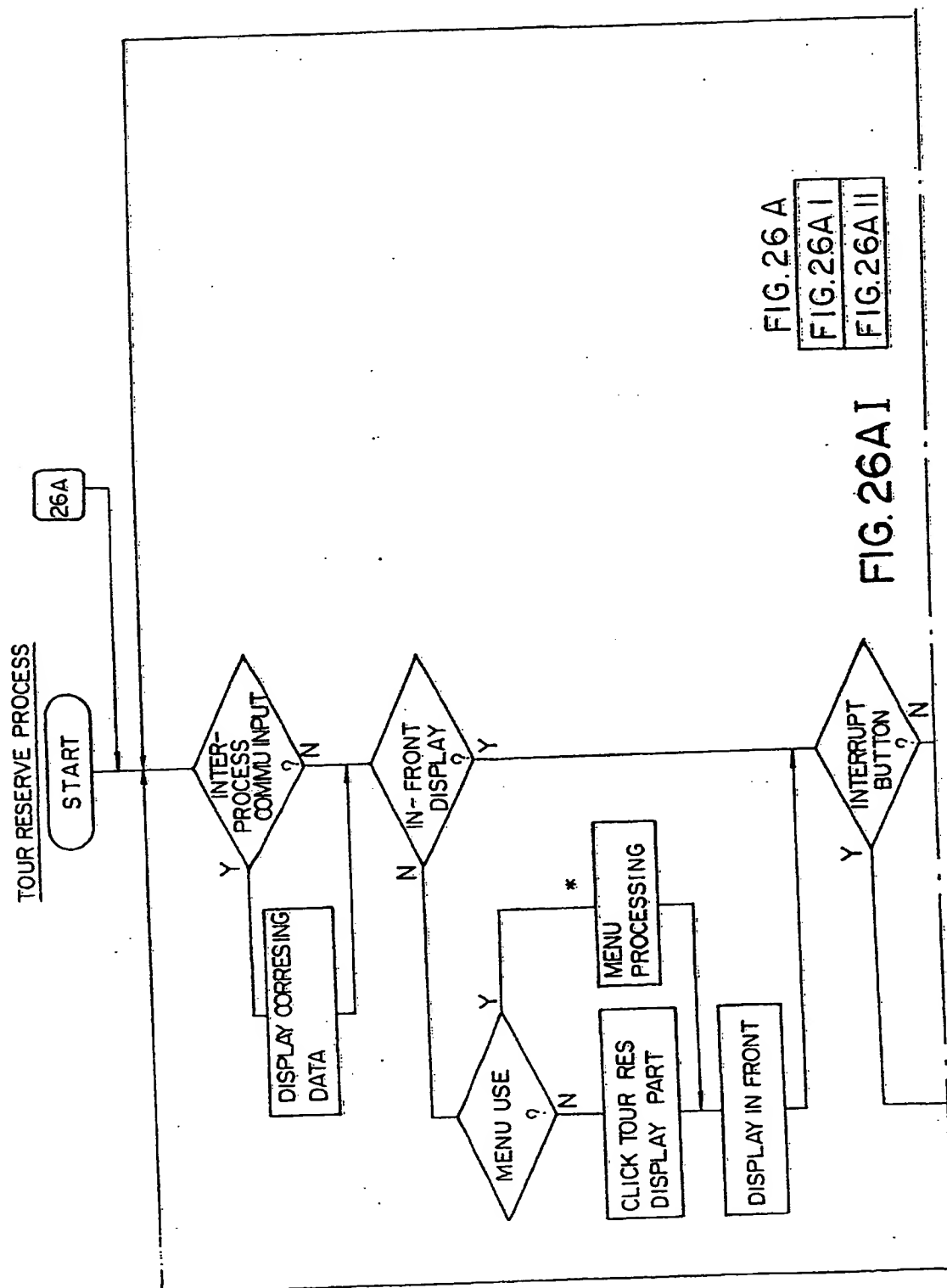


FIG. 25C II



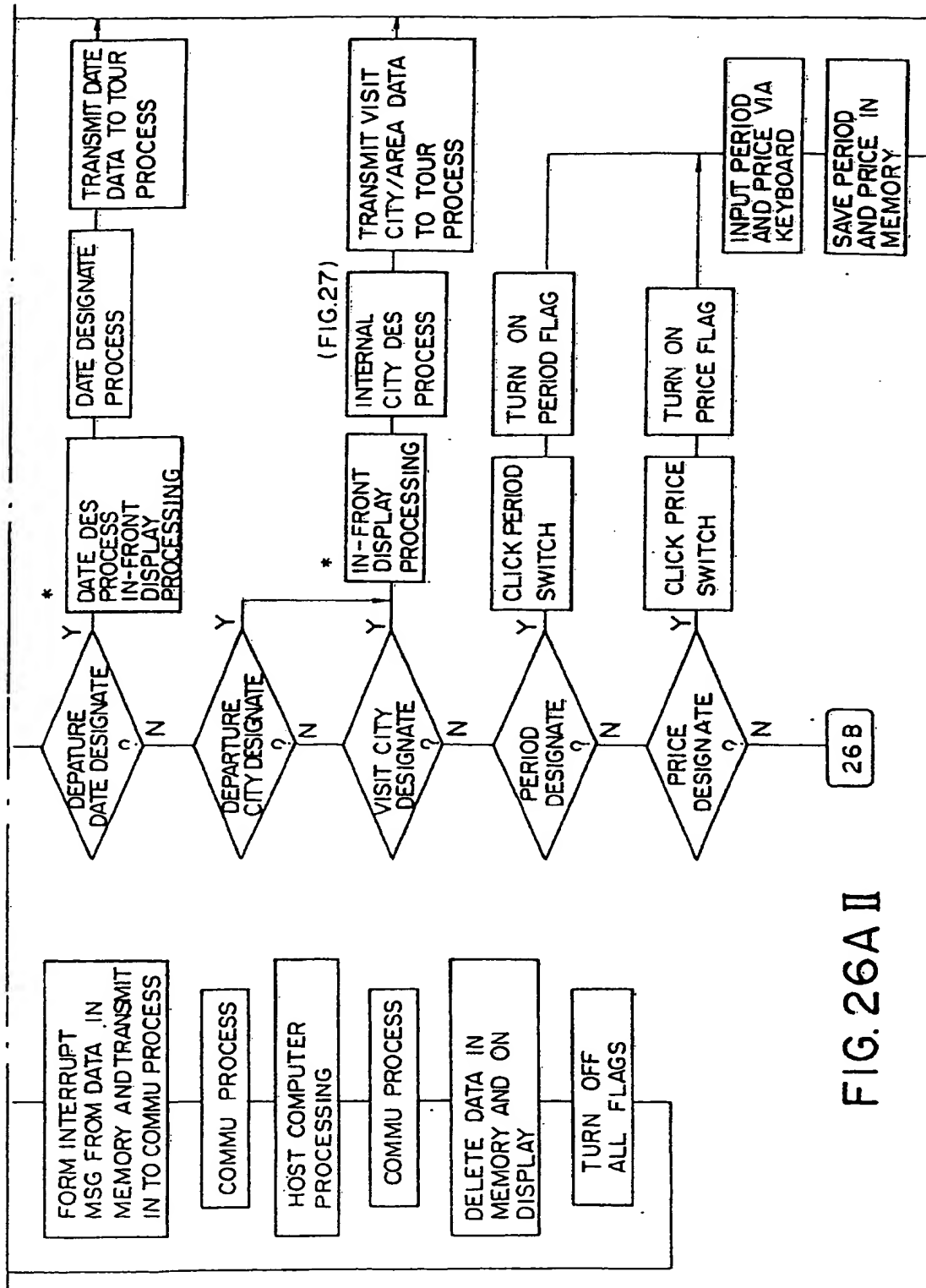


FIG. 26A II

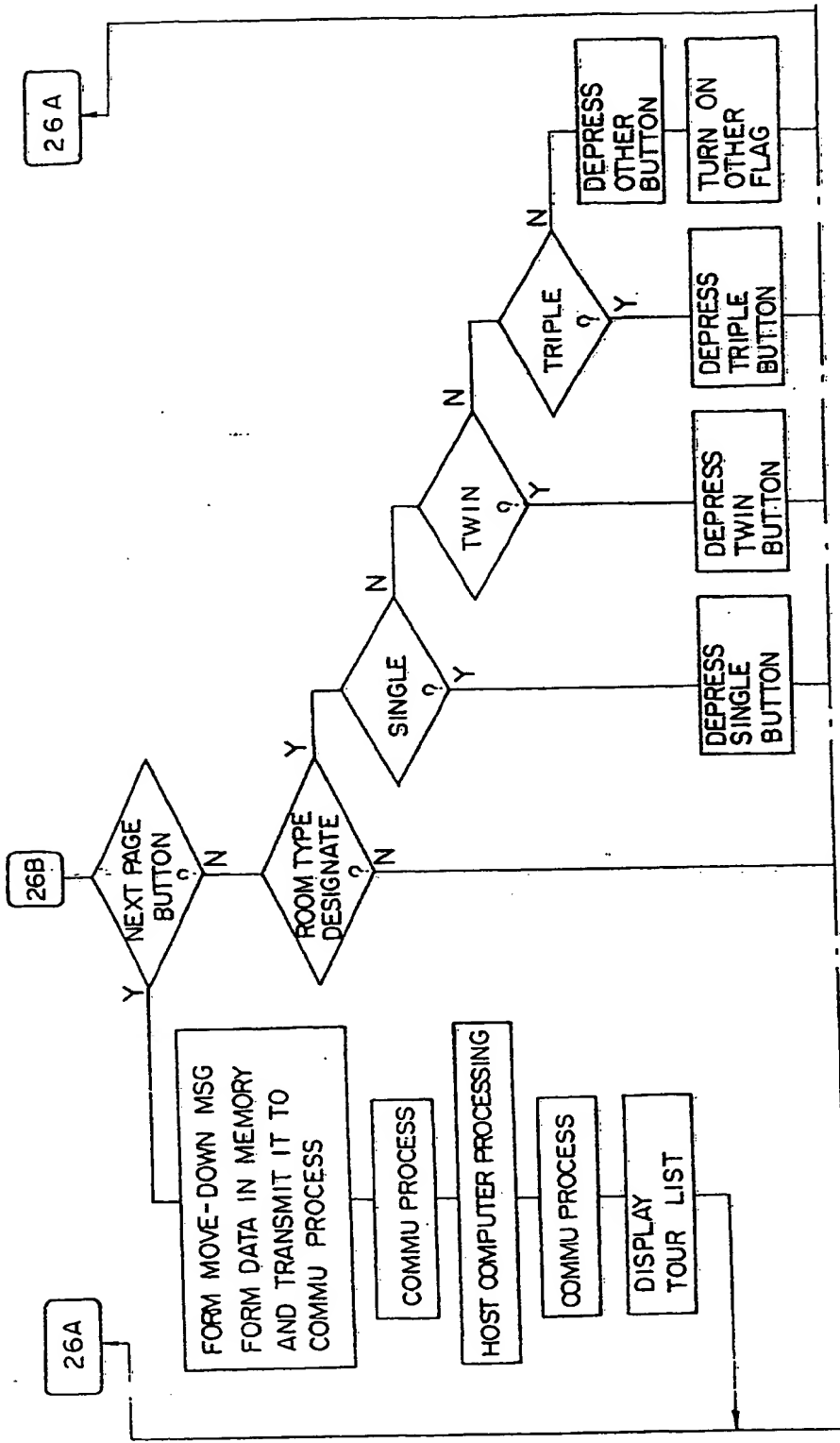


FIG. 26B

FIG. 26B I

FIG. 26B II

FIG. 26B I

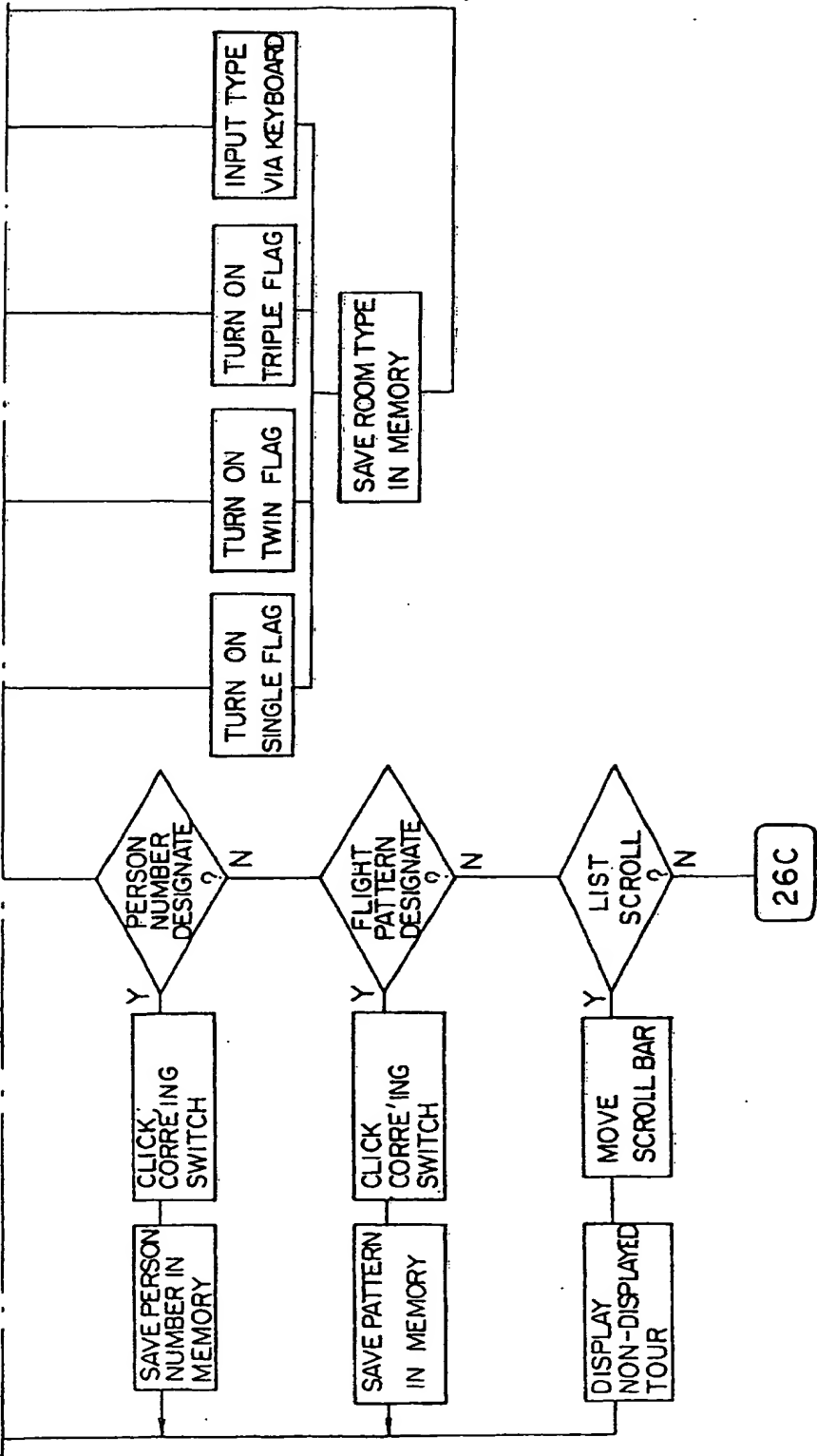
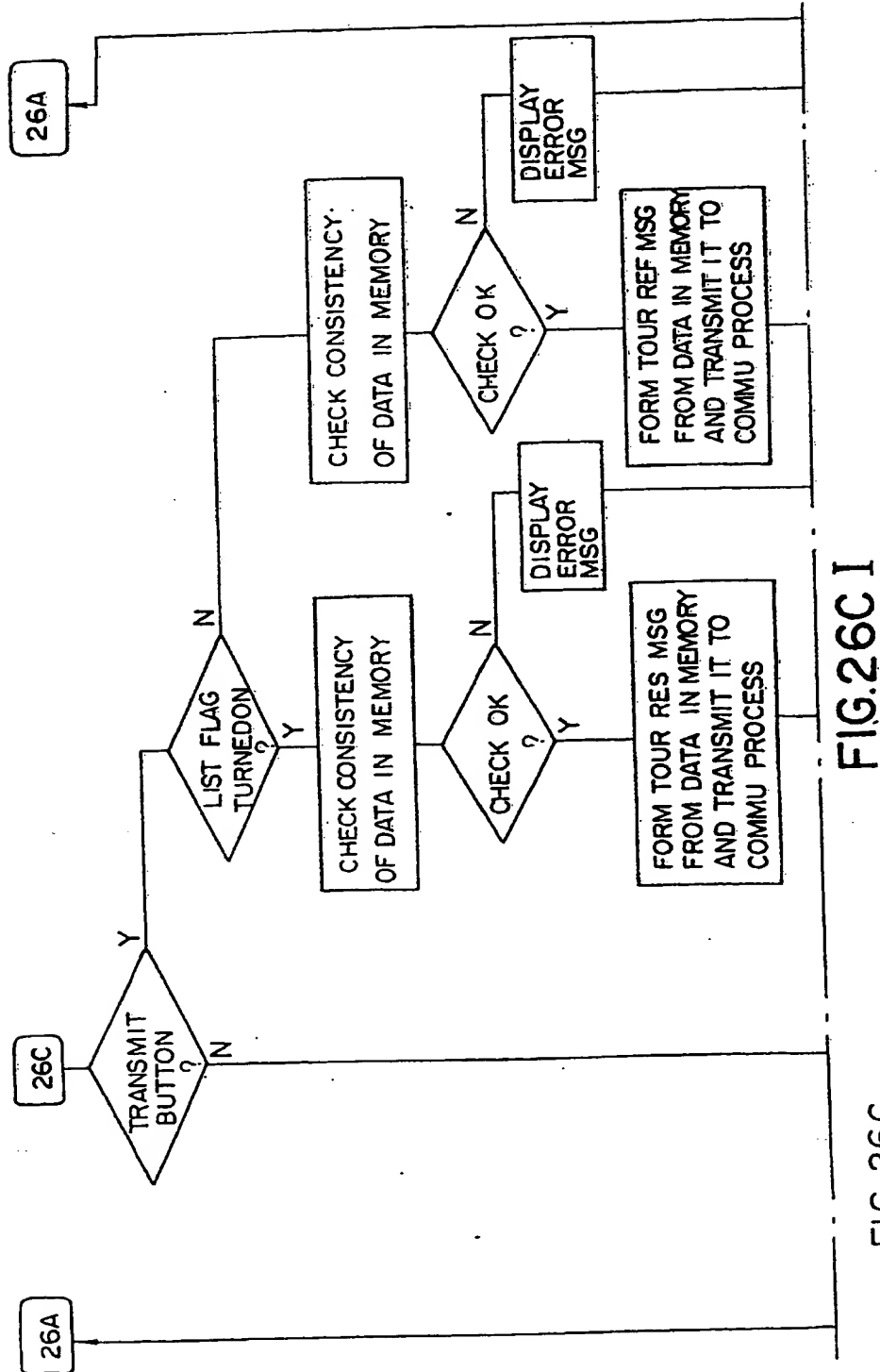


FIG. 26B II



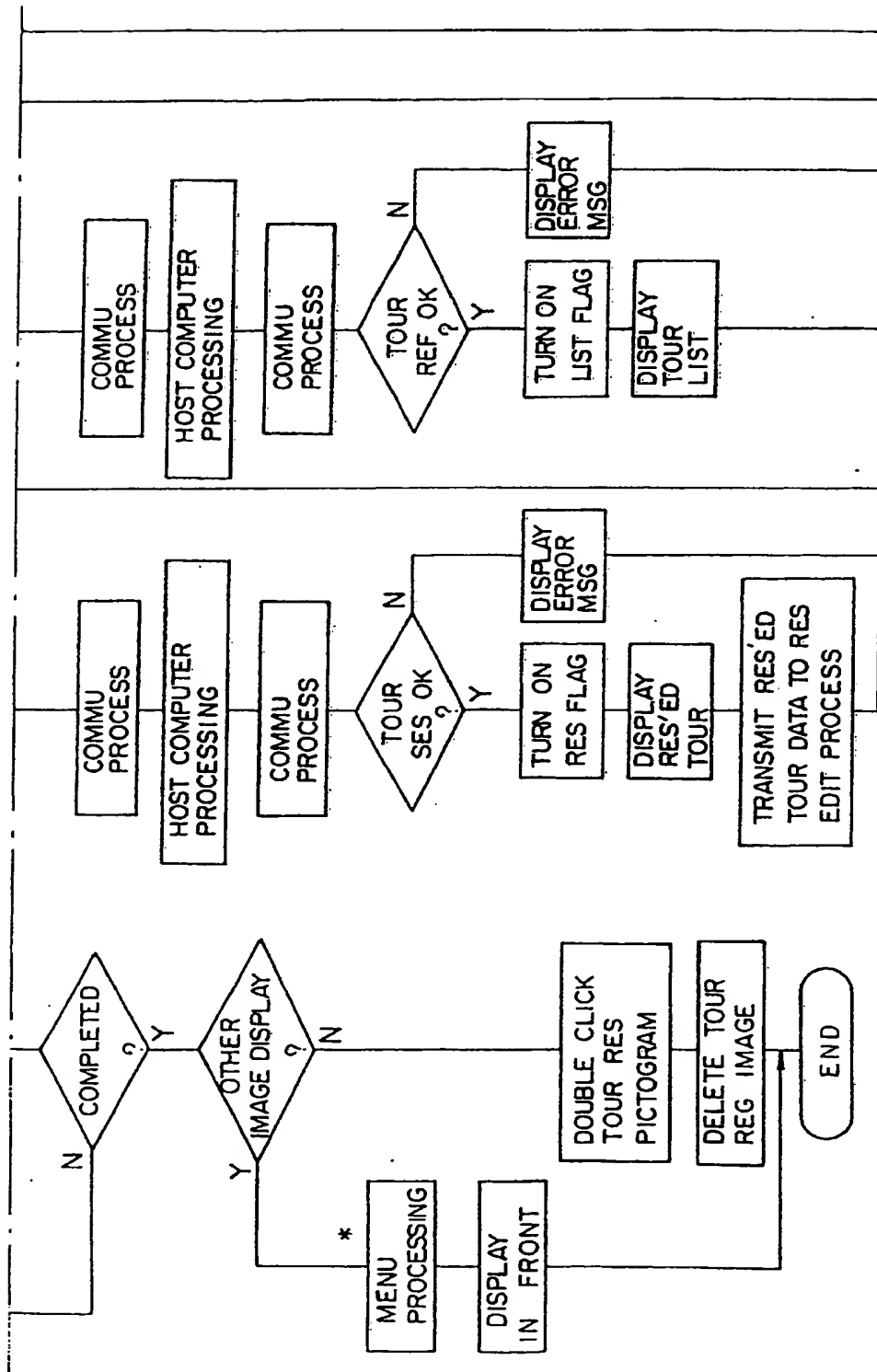


FIG. 26C II

INTERNATIONAL CITY DESIGNATE PROCESS

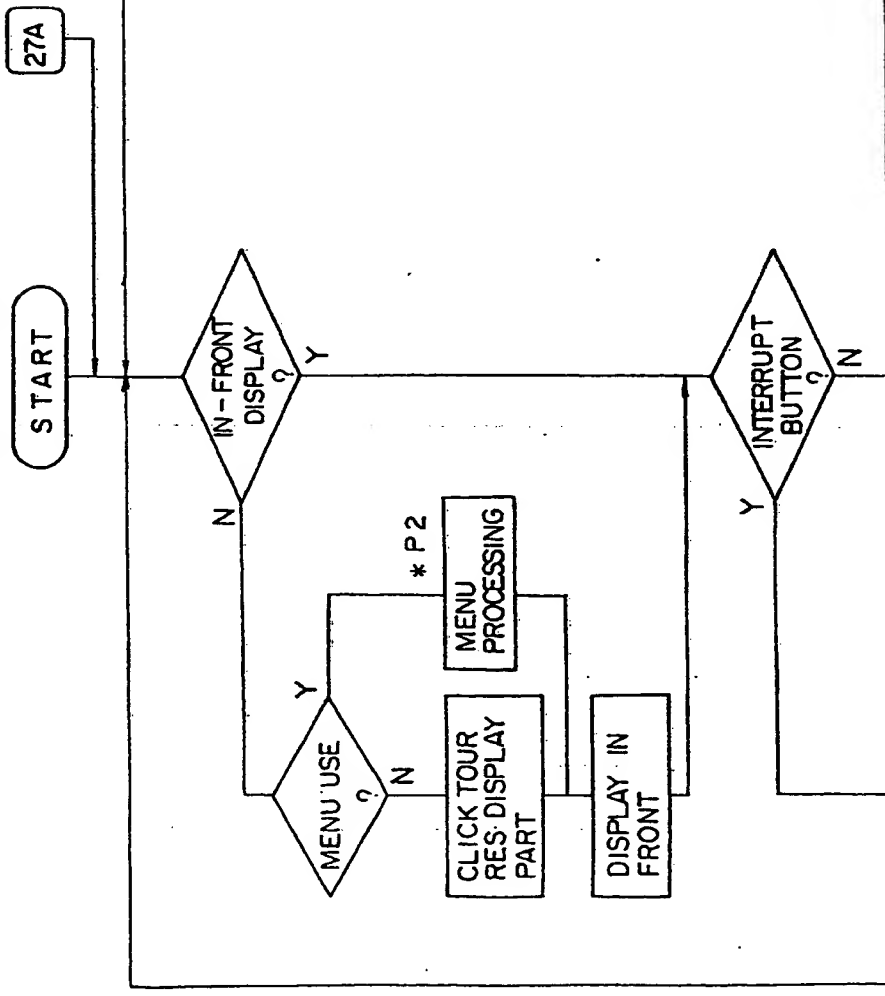


FIG. 27A I

FIG. 27A

FIG. 27A I

FIG. 27A II

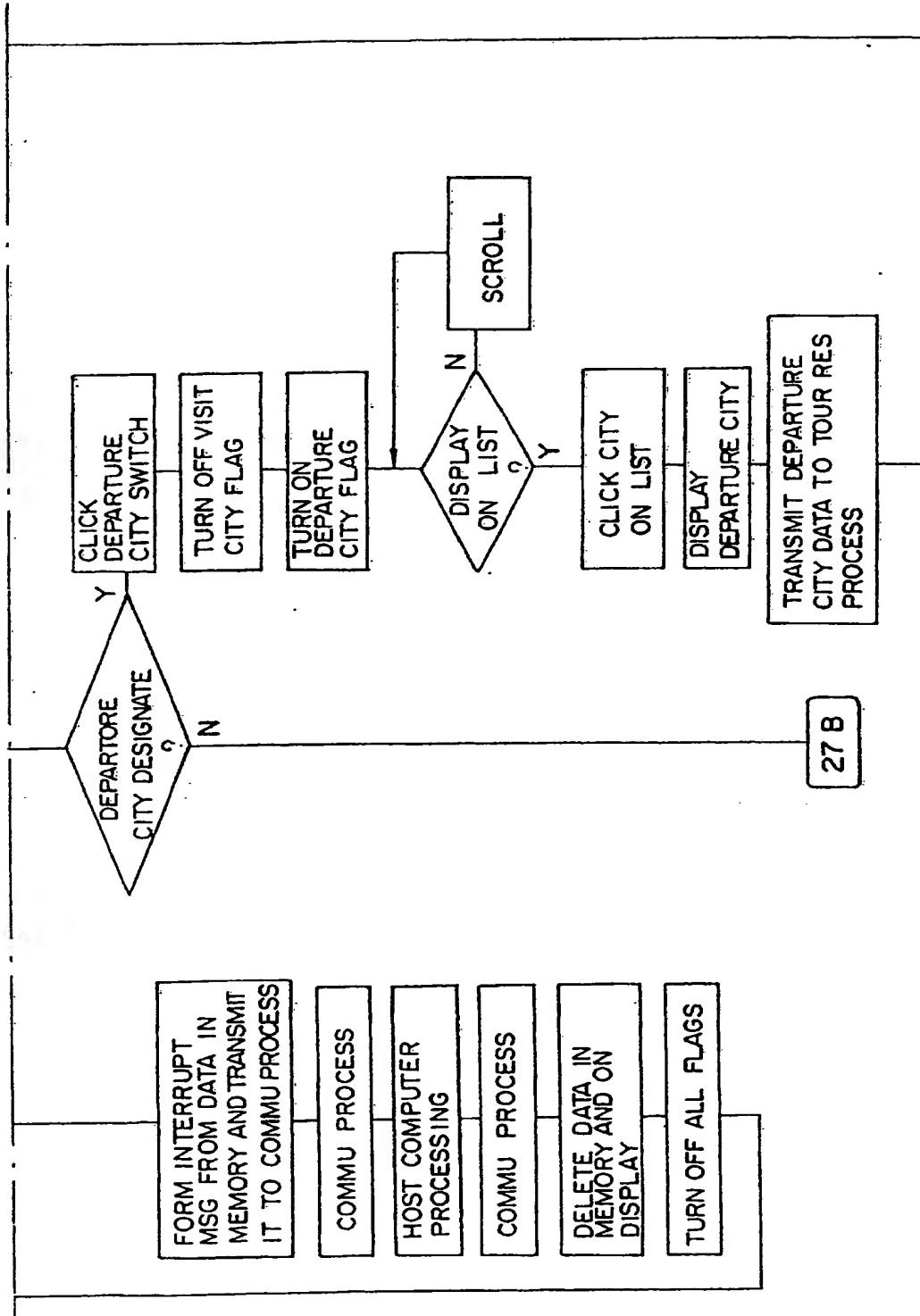


FIG. 27AII

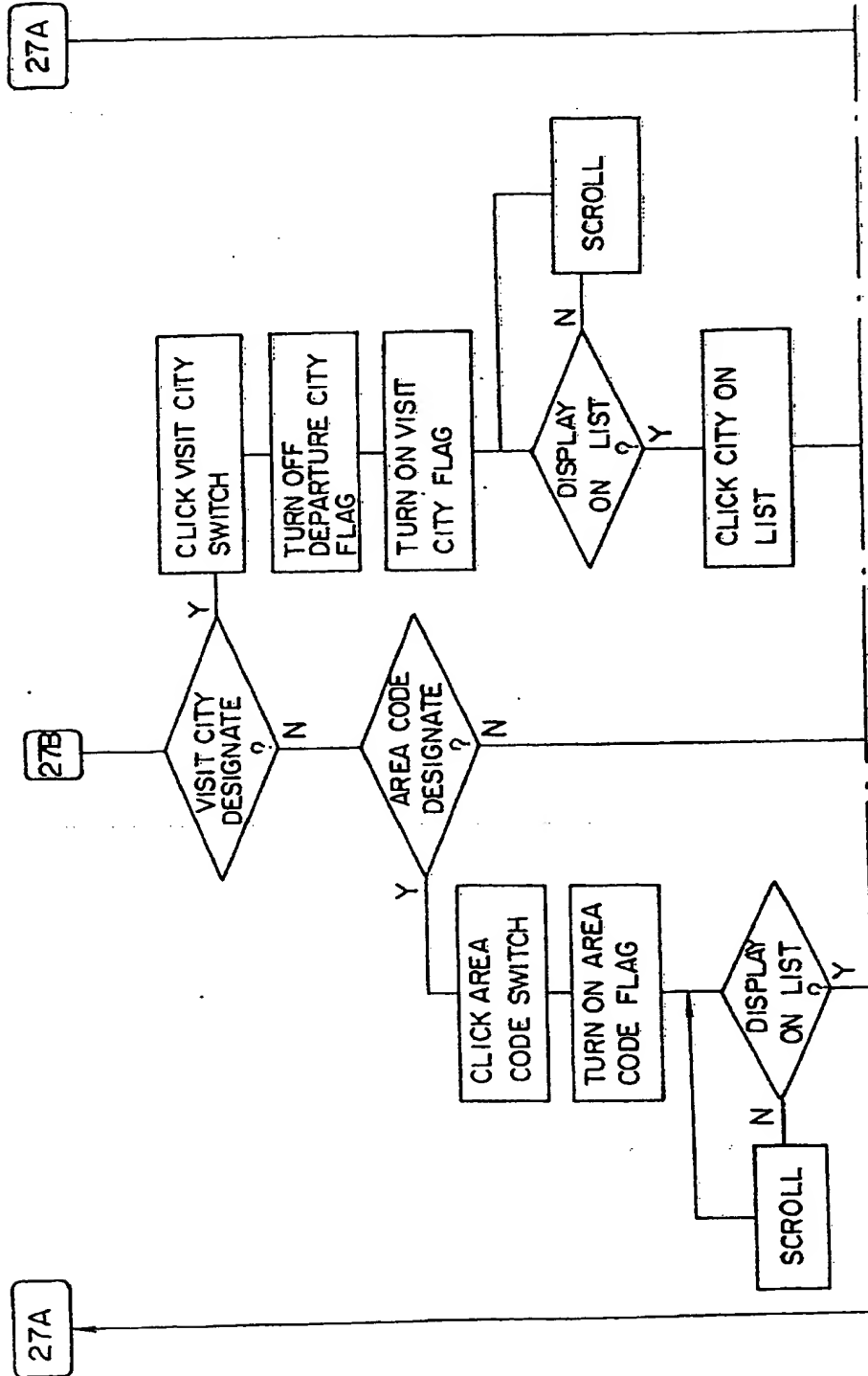


FIG. 27B I

FIG. 27B

FIG. 27B I

FIG. 27B II

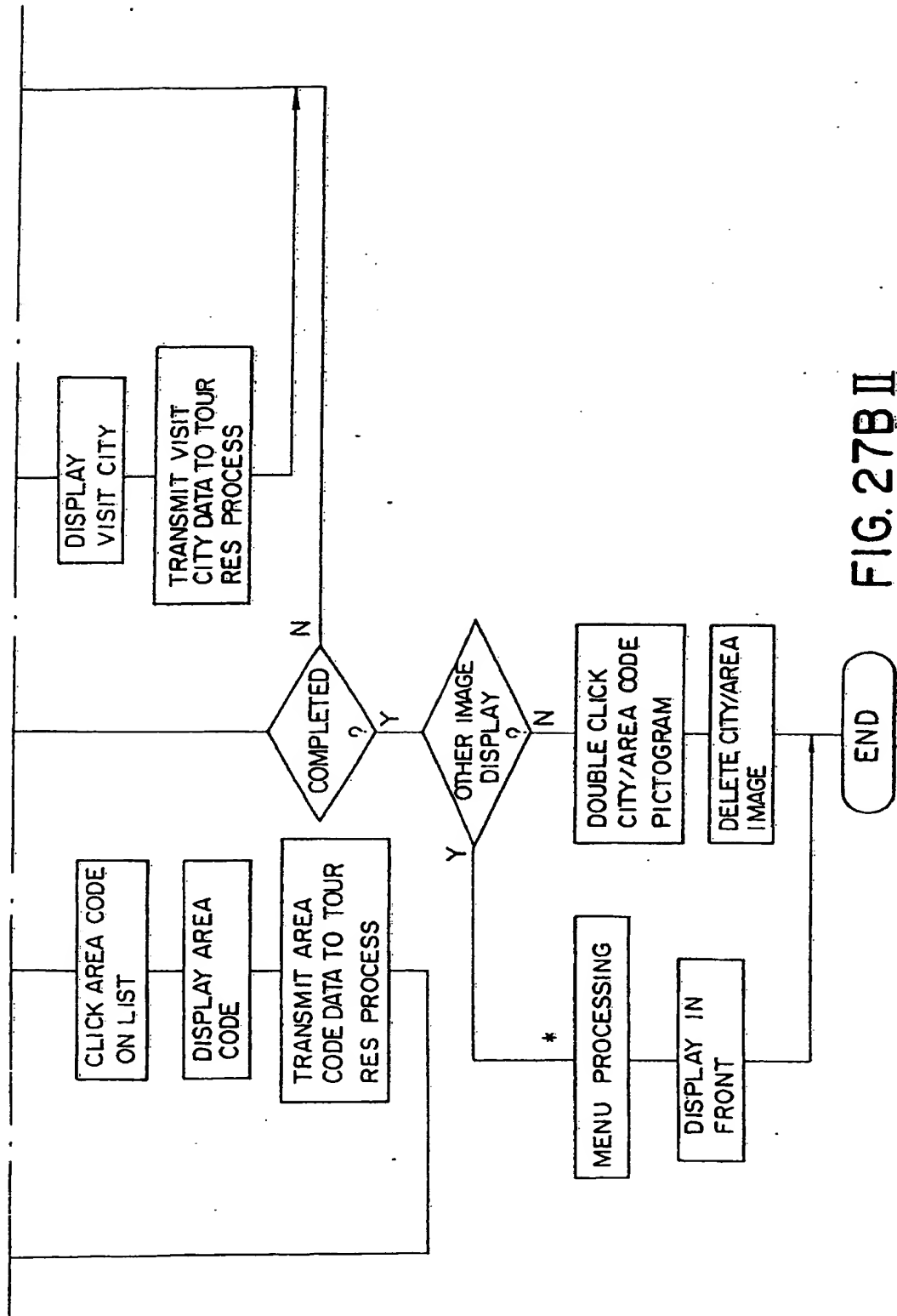
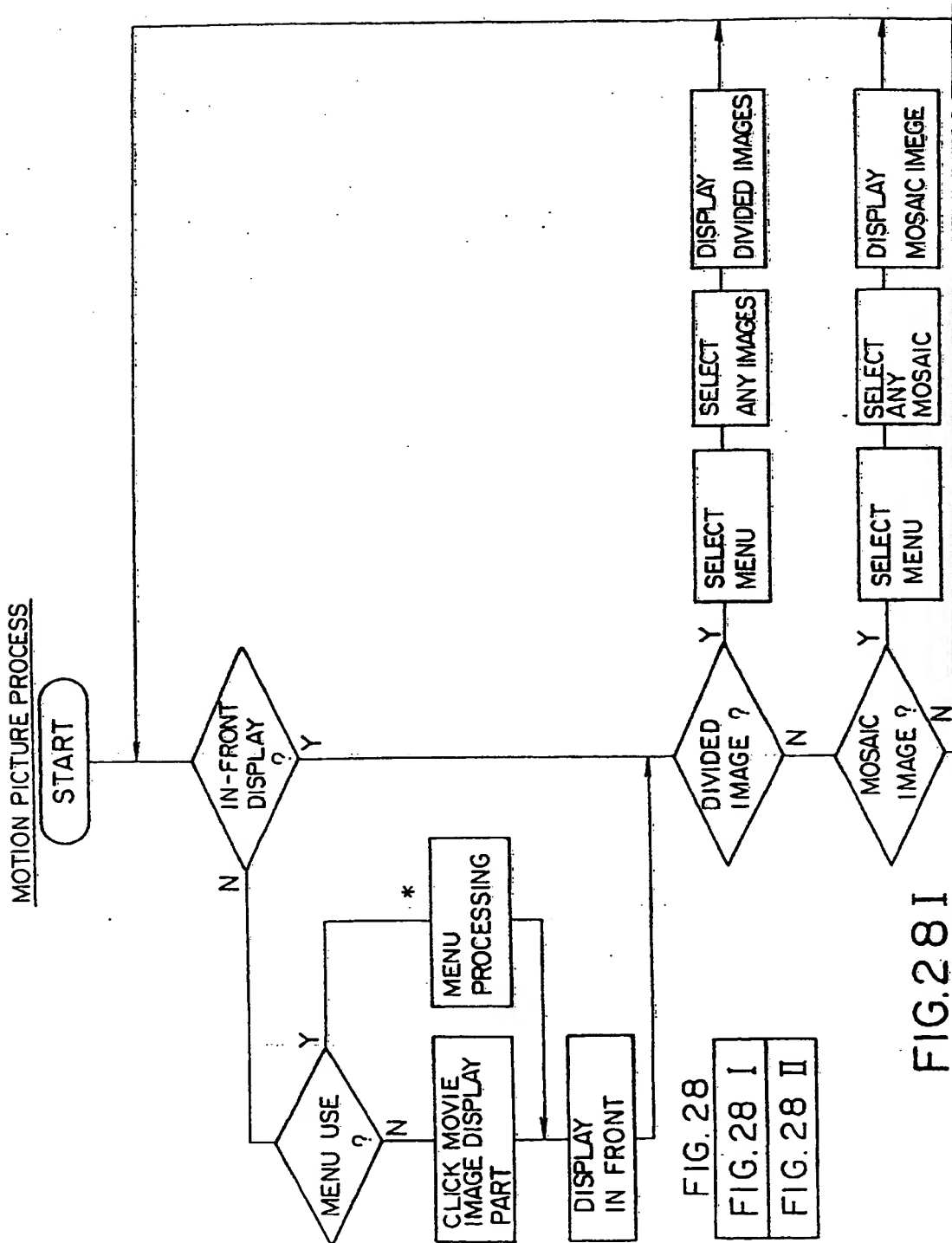


FIG. 27B II



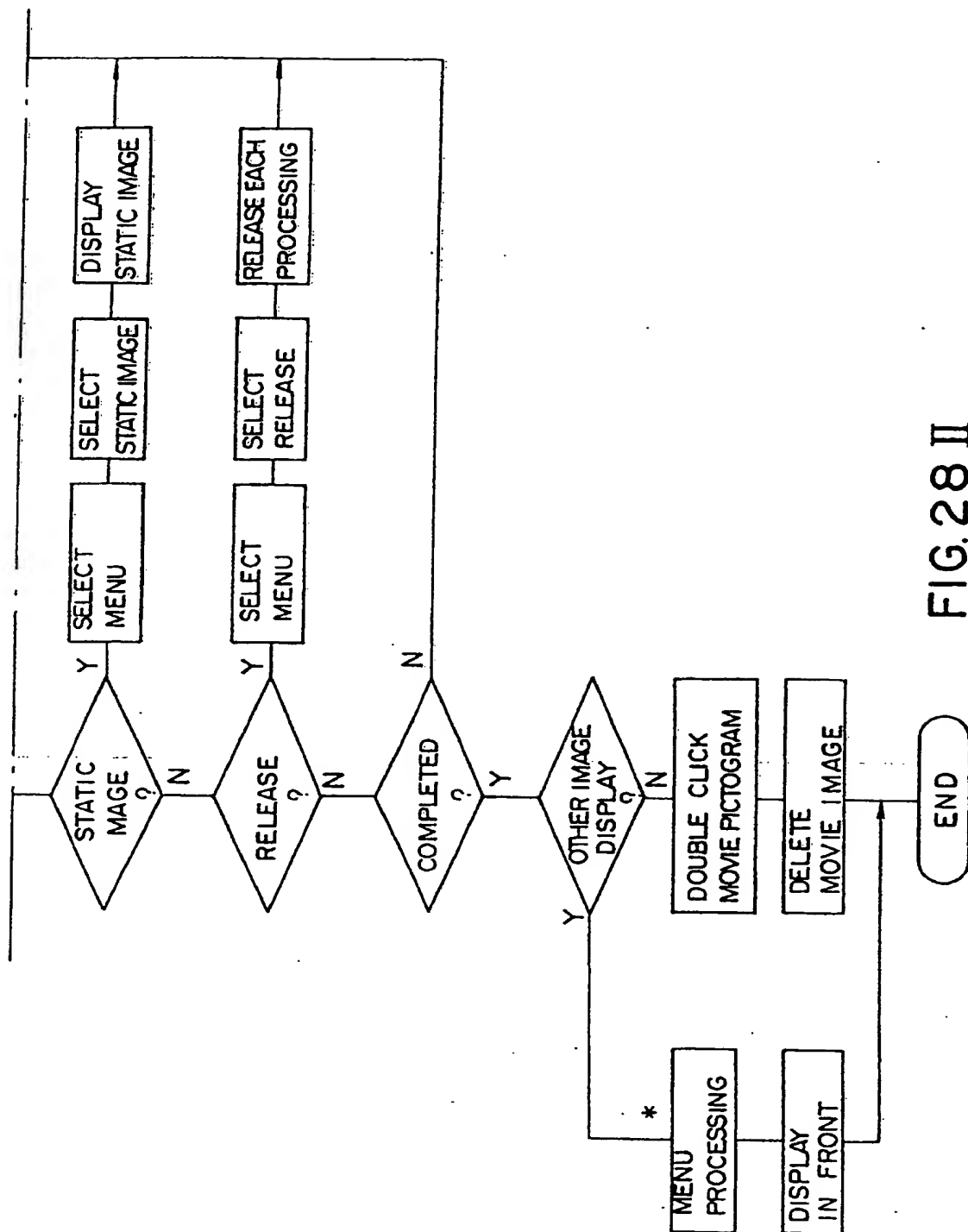


FIG. 28 II

INTERNATIONAL SEARCH REPORT

International Application No. PCT/JP90/01547

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁴		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int. Cl. ⁵ G06F15/26		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC	G06F15/21-15/26	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
Jitsuyo Shinan Koho	1926 - 1989	
Kokai Jitsuyo Shinan Koho	1971 - 1989	
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ¹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
Y	JP, A, 1-166254 (Hitachi, Ltd.), June 30, 1989 (30. 06. 89)	1-24
Y	JP, A, 62-150464 (Fujitsu Ltd.), July 4, 1987 (04. 07. 87)	1-24
Y	JP, A, 62-69363 (NEC Corp.), March 30, 1987 (30. 03. 87)	1-24
Y	JP, A, 61-196319 (Hitachi, Ltd.), August 30, 1986 (30. 08. 86)	1-24
<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"Z" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
January 29, 1991 (29. 01. 91)	February 12, 1991 (12. 02. 91)	
International Searching Authority	Signature of Authorized Officer	
Japanese Patent Office		